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EDITORIAL

PSYCHOLOGY AND WASTE PREVENTION

ECONOMIC waste in America is being determinedly attacked both by government agencies and great corporations. Success is being attained as shown in the reports of the U. S. Department of Commerce and the National Chamber of Commerce.

The greatest waste of all, however, is that of human derelicts; infirm, insane, feebleminded, shiftless and criminal, the burden of which is increasing more and more. While the average citizen may not realize this while surrounded by economic plenty, it has become an acute evil in the eyes of publicists and students of sociology, and even the newspaper reader is becoming impressed by the increasing dangers from the fast growing criminal population. The man in the street loosely attributes this to prohibition, scoffs at the government and does nothing or votes for wine and beer when opportunity offers believing vaguely that by some such magic crime may be controlled. The fallacy of this substitute for thinking can be seen in a moment by examining the statistics of crime before the war and the enactment of prohibition. The great increase was just as manifest although it had aroused less attention.

The conspicuous feature of both antebellum and postbellum crime is the prevalence of the juvenile. This, although looked upon as a novelty, is not such, as for fifty years the apache gangs of Paris have been young men.

In governments by monarchs, tyrants or oligarchies, the strong hand was trusted for the suppression of crime by violence and fear. In the democratic state of to-day, where every man is legally free and potentially the equal of any other, these former restraints are less influential. In America, reliance has been placed upon the public school and the educational measures of the home, and the sanctions of the church. While these have not altogether failed,

yet they have fallen far below expectations, and America is not alone in this disappointment although the United States is by far the most conspicuous example of a nearly universal pullulation of criminality.

The prevalent political pessimism which has replaced ante-bellum complacency stresses the failure of democracy not only to prevent crime but to promote happiness of the virtuous. The thinkers who seek remedies for the most part cease to rely upon the agency of political systems although our legislators continue to tinker gaily with these.

The Christian ideal of the regeneration of the individual is the most general focus of attention. But the methods of doing this vary with the social doctor's training and experience. The physiologist Haldane will have man remade by glandular extracts; the geneticists seek a new world in the selection of parents, and others in the sterilization of the unfit. The economists, among whom are socialists, would bring universal brotherhood by the full dinner pail, while we still have with us the paternalists who believe in dictatorship.

All these are extremely one-sided viewpoints of humanity. Human behavior is regulated as much by training and environment as by glands; from parents apparently bad may emanate good citizens and even genius. Virtue is not a concomitant of the full belly, while human development is only frustrated by authoritative exercise of power.

The broader thinkers, observing the colossal development of man's power over nature by scientific methods of its study, have asked whether the methods of science if applied to man himself might not aid in his regeneration. Even the mathematician, Bertrand Russell, who was thrown into despair by the philistine blundering of the great war, finding no one not blind to lead the blind human Caliban, has groped his way from this darkness, and now joins those who see possibilities of regeneration in an education based upon a sure knowledge of the nature of the creature to be dealt with. Before this, Schiller, in passing in review the possible agencies of regeneration, rejected one after another until he considered the psychology of to-day. To the uninformed this conclusion may seem fatuous when they think of the psychology of the past as they met it in their colleges, or even when they think of what masquerades as the psychology of to-day in the catch-penny magazines and lecturers of the charlatans, who with their unerring scent for popular appeal, fasten upon the foreshadowed

potentialities of genetic psychology in order to exploit them among a people hungry in the desert left void through the withering by the blast of science of the soothing shade of earlier religious beliefs. As usual, the exaggerations of charlatans have degraded in the minds of the public the science they have exploited. But it would be as reasonable to condemn psychology as to abandon astronomy because astrologers continue their nonsense, or to give up modern chemistry because of the fatuities of the alchemists. And yet so erudite a commentator as Spengler sees no hope in psychology, because he is speaking only of the metaphysical quibblings of the texts of yesterday. He has no adequate acquaintance with the psychology of to-day.

Those who are acquainted with the great power over the individual given by experimental researches of the twentieth century based upon the work of the great Russian physiologist, Pawlow, as well as upon the work of psychopathologists such as Janet in France, and carried out most extensively by the pupils of William James in America, feel it is their duty to place before laymen the facts upon which such philosophers as Schiller base their hopes, a belief shared by all the followers of Froebel in pedagogy, by students of criminology and by large numbers of the legal profession and by psychiatrists. A reconciliation of the numerous divergent opinions and theories of psychologists is rapidly occurring. The aberrant peculiarities of psychoanalytic schools are passing away; and the science of psychology is now available, comprehensible and valuable to the man in the street as never before.

INDIVIDUAL PSYCHOLOGY

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SOMETIMES the correctness of this title has been doubted. But the opponents are entirely wrong. Particular knowledge already of this science and art can prove that our aim is to understand the individual style of life as a part of the whole. Therefore our subject involves at the same time the understanding of the whole, the life of mankind, connected with this poor earth-crust, and the social relation with the other sex. These three ties are inseparable and every human being answers in his individual attitude the questions growing out of these relations. These questions are inevitable. They must be established; *i.e.*, in friendship, comradeship and social connection towards others and develop all those characteristics necessary to become a fellow man such as truth, responsibility, interest for the welfare of others and for the present and future of mankind. The second question demanded by the cosmic influence gives postulations for being useful, working, creating. As is easy to see, this question is deeply conditioned also by the social life and proves that "useful" means useful for society. Out of the relation between the two sexes originates the third call asking for the solution of the question of love and marriage. This question is also related to the first one, connected with the facts of a social life and with a view to the future—*children!*

Every individual is always answering the big and little questions in life. We can notice the answers and their varieties among different persons. And we can understand: the absolute truth lying in those questions, as in a mathematical problem, is never to be found out. We are not blessed with the knowledge of the last truth; we are only striving. So we are entangled in many mistakes and the answers given by every individual are involved and influenced by our lack of understanding. Mankind answered by creating our culture to solve the problems of life for the use of society. We feel and perceive the differences towards a right solution, and the efforts of everybody, the attitudes towards our social life are always gratifications, contradictions, accusations, pushing

and dragging along the stream of our culture. Everybody is also perceiving and judging his own way and answer and strives to complete and to accomplish his own totality, always confronted, always asked and driven by the lasting gaping blanks between his individual solutions and the full completion of his life. We can understand that in this way there is always living and stimulating a *feeling of inferiority.*

This revealing of a common law in the human mind and psyche was the work of individual psychology. This science and art started in discovering during the first years the mental development of children affected with inherited or early established organic deficiencies. I could prove that children born with defective organs experience their bodies and its pains and weaknesses as a burden. They, much more than normal children, are striving to compensate those lacks and to arrive at a goal in which they are foreseeing and presuming a whole satisfaction, a feeling of superiority. In this stream going from "down" to "above", from a felt minus to a presupposed plus, they are attacked much more by the difficulties of life and feel and live as though they were in an enemy country. They also develop all the movements, understanding, feeling, expressions and symptoms as a part of their answers to the questions of life. And they are fixing their style of life much more quickly and firmly to establish an offensive and defensive attitude. We can find strikingly expressed characteristics among those children. Fighting, hesitating, stopping, escaping, much more occupied with their own persons than with others they are therefore selfish, inconsiderate, lacking a social feeling, courage, and self-confidence because they fear a defeat more than they desire a success. Looking for favorable situations, they are inclined to create barriers to avoid the solution of the three questions of life. Then they are impressed by the dark side of life, burdened by the inferiority of their organs.

This same burden and pessimistic view originates when the environment is unfavorable. Therefore we find this great feeling of inferiority also among *spoiled children.* They are living in a symbiotic manner, like parasites, always connected with the mother. Their goal of superiority is to make this relationship permanent. Each change terrifies them. But changes are unavoidable. Because of this the usual feeling of inferiority is increased. In order to win the most favorable situation those children are always trying to occupy the mother and to give her tasks—in eating, in sleeping, in functioning. They do not like to go to sleep

because they are then separated. They call for the mother and demand something more. In sleep they often cry or wet their beds to give signals of difficulty and trouble to the mother. When left alone they develop anxiety, an intelligent function, in order to be joined with the mother. Their social feeling is lacking in a high degree and only developed towards the mother. They consider other people enemies. Every new situation will be accepted as a danger. They are not prepared to have a new sister or brother and feel dethroned, become aggressive, peevish and reserved. In more difficult cases kindergarten, school, possible friends and comrades are considered enemies. Even the father can be looked upon as an opponent. They are inclined to exclude each new situation and person; always feeling themselves in danger they are lacking in courage and self-confidence. Later in life they are not adapted for occupation and love and marriage, because they consider only their own welfare and are not looking for the interests of others. The result is a hesitating attitude, in which they are stopping, or escaping from social life, occupation and love. They cannot overcome their great feeling of inferiority and strive to decrease the action circle of their life, domineering the family with their neurotic symptoms. Sometimes they turn towards crime, and in childhood these are the majority of the problem children.

The difficult problems appear when they lose their favorable situation. That is when they feel hated and notice more keenly the mistakes of the mother. Sometimes they connect with the over-indulgent father, but they are not able to have social contact with many people.

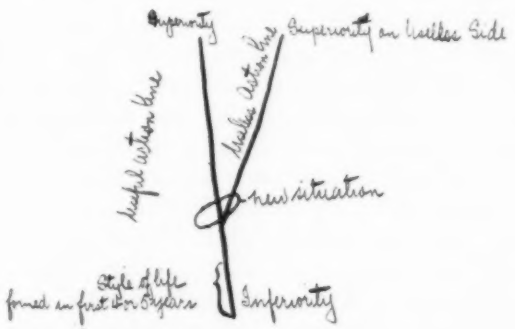
Nearly the same symptoms appear in *hated* children—that is: illegitimate or not wanted children. They feel curtailed and behave like enemies. They use their power only if they are stronger, sometimes in a cruel manner against weaker persons or animals. Their goal of superiority is to suppress the others. Their increased feeling of inferiority makes them suspicious and sly. It is difficult to win them and to develop social feeling and courage to do useful work.

The goal of superiority imagined by every person, more fixed and exalted in these three types, forms and moulds the unity of soul. In reality it must be in a concrete form—that is: to become a coachman, teacher, a physician, or priest, always directed towards the goal of superiority, of godlikeness. At this point it is understandable that poise, understanding, attitudes during the day and in sleep, every expression, symptom, emotion, and feeling is

dependent upon this goal. Sexuality and all the sexual varieties and attitudes are also dominated by the style of life.

Children who are lacking in a social feeling and therefore in courage and self-confidence must be changed by their teachers. Adults who develop neurosis must have their courage increased by psychotherapists. In the future specialists must be created to establish the same faculties in criminals. The treatment and cure should be the right development of the double function of the mother: (1) to join with the person and to give the individual the experience of a trustworthy fellow-man; (2) to increase and spread the social feeling, to strengthen independence and courage.

A person who does not join with others, who does not have a true social feeling, is the one who stops, hesitates, fights, escapes when he comes in a new situation: such as kindergarten, school, marriage, friendship. All these are social situations and require social feeling. It is this type that become the criminals, problem children, neurotics and suicides. Striving for superiority and being lacking in courage they turn from the useful to the useless side. The following drawing illustrates the point:



A boy, 13 years old was sentenced to the detention home. He did poor work in school, stole and was a vagrant. Fortunately one of the teachers in the home was a pupil of mine. He investigated the boy's testimonies and discovered that until two years before the boy had done well in school. At that time the boy was put in a new class with a new teacher. The former teacher had been soft and kind and thus simulated the home atmosphere. The new teacher was hard and strict. The boy came into a new situation and was unable to cope with it. Further investigation showed that the boy had stolen in order to buy gifts for his school fellows. He wished to be the center of attention and to be appreciated, but

not being able to cope with the situation adequately he sought for superiority on the useless side. An investigation in regard to his truancy showed that he ran away from home when he was beaten by his father. However in the night he would collect wood and lay it before his mother's door—his mother was a poor woman. This was a silent message to his mother "I love you, I want to be appreciated by you". A spoiled child, he was joined to his mother in a symbiotic manner. He lacked social feeling towards others, naturally he could not attain superiority on the useful side in social situations. By tracing back in this boy's life to the point where he met his difficulty, by giving him the feeling of a fellow man and developing his social feeling this boy soon regained his courage and came back to a useful goal. Misunderstood and unguided this boy would doutless have developed into a chronic criminal. Modern psychology and education must treat the causes and not the consequences.

The deeper insight into mind and psyche was perhaps, until the last fifty years, the work of intuition alone, not scientific, not teachable, and not learnable. Common sense ruled, and really in such a high degree that we must worship it as represented by poets, philosophers and educators. Outside of family tradition, the bible and fairy tales are our first teachers in understanding human nature. Homer, Shakespeare, Dostojewski and others are reaching upwards in their understanding of the complications of human life. Socrates and his Stoical School, like individual psychology, insisted that everything in the mind was dependent upon how the individual looked upon it; Kant, Montagne, LaRochefoucauld, William James and others had the deepest insight into the soul of human beings.

The development of the *science* of psychology began with the consideration of the abnormal expressions of the psyche. Perceptible scientific points of view lie in the theories of hypnotism as taught in the School of Nancy. Charcot pierced the wall and opened the great field for inquiries into the nervous symptoms diminished or increased by hypnosis. Janet developed a great and astonishing work regarding the reciprocal influence between body and psyche. He also saw the weakness of neurotic persons expressed sometimes in a "sentiment d'incomplitude". Breuer (Vienna) found, as he wrote to me in a letter, "the sparkling stone lying on the road", describing the importance of suppressed experiences. Freud continued this idea and reduced all the expressions of life, of the human being and mankind, to a suppressed and unconscious

sexual desire, the "Oedipus Complex". In the last fifteen years there has been much more inquiry into the influences of the ego and the desire for death. I myself have emphasized the unity of the style of life which is always fixed and established by the ruling actions line, the real creative power in life, a part of life itself beginning with a *feeling of inferiority* and continually striving toward a goal of totality, of superiority. This goal dominates the innate possibilities and gives the answers to the questions of life in each individual solution. The superstition of inherited powers and mistakes was done away with—the human being became the master of his life. But in the individual the wrong and mistaken style of life, built up in early childhood, brings up aggravated conflicts connected with the hesitating attitude towards new situations and decisions. This hesitation, stopping or escaping from the questions of life, conditions the three remarkable mistaken forms of life: wrong characteristics (problem children and adults), neurosis, crimes. Jung's attitude, closely connected with the Freudian psychoanalysis, takes for granted more than his teacher the inherited qualities in the introverted and extraverted types. The former, more occupied with his own person, and the latter, connected with the environment, are described by individual psychology not as a beginning but as the results of a varied degree of courage and social feeling. We must insist upon the same difference in regard to his "innate" types of intellectual feeling, acting, and intuitive life. And the social unconsciousness is no other than the social feeling, only that we cannot agree with the great importance given to the difference between consciousness and unconsciousness. Then too, the conscious is no more and no better understood than the unconscious, but the degree of their development is formed by the demands of the goal of superiority.

The nearest to the individual psychologists, and really their predecessors, are among the Americans—William James and Stanley Hall. The latter completely accepted individual psychology in the last years of his fruitful life. Watson in his more mechanical views clearly presupposes the conditions of the goal of superiority and the striving of the mind and psyche. McDougall in his specialized inquiries into the 14 instincts could easily combine all these movements in the feeling of inferiority and its compensations and in social feeling.

The great and worthwhile efforts of mental hygiene in America approach the lines and purposes of individual psychology. The great importance of the feeling of inferiority especially is clearly

recognized by all serious authors. On this path the great progresses in education and understanding of the psyche are made. The mistakes made in the family, due to the lacks in courage and social feeling, as the driving factors in the development of problem children, are well known and a great number of men and women are trying to teach the parents and the children.

Individual psychology has recognized that the problems begin before or in a new situation for which a child or adult is not prepared. His style of life fixed after the third or fourth year does not agree with the existing social laws of these situations, *i. e.*: kindergarten, school, society, occupation, love, marriage, old age, etc. The greater feeling of inferiority (among organically defective, spoiled or hated children) strives to exclude social connections because of the strongly developed selfishness. Under these circumstances we notice all the deviations as difficulties, neurosis, crimes. The only rescue and preservation lie in courage and social feeling.

The parents therefore must learn to lessen the family egoism and to put the children in a social environment as soon as possible. Their courage and independence must not be hindered by pampering and continued support. Quarrels in the family can be prevented if the parents do not rule but treat the children in a friendly manner. And both, parents and children, have to perceive that the personal and common happiness are dependent upon the interest of each in the other. In this striving is included usefulness for society, all good characteristics and the right preparation for new situations.

The mistakes made in the family must be recognized early. Psychotherapists, psychologists, social workers, and especially the teachers must understand how to correct them. The pillar of modern psychology and education on which we must lean must eventually be the school. We cannot single out each difficult child; often it is too late. The teacher of the future will not only recognize and criticize the lacks and mistakes but he will join with the parents and modern psychologists in leading youth to a hopeful future in which their social feeling and responsibility will increase.

THE INFLUENCE OF THE PRESS UPON THE ACCURACY OF REPORT

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IN view of the lack of quantitative studies of the actual effect of the press upon the accuracy of report it seems desirable to present this study which was made possible by an accidental circumstance. The particular circumstance was the unwitting distortion by a university newspaper of certain data which had been presented in a lecture given as part of a course in general psychology.

Two experiments were discussed by the press, hence the facts derived from these may be recited as stated in the lecture and then compared with the newspaper account. In order to clarify the presentation of certain features of suggestibility an experiment reported by Seashore[1] and another by Aveling and Hargreaves[2] were outlined. The lecturer emphasized that eight college students, used as subjects by Seashore, reacted to his experimental conditions by perceiving warmth in 415 out of 420 trials, or they reacted positively in more than 98 per cent of the trials when no objective increase in thermal stimulation was present. Particular stress was laid upon the danger of generalizing from data obtained from eight subjects and the caution was emphasized by the statement that other investigators had not obtained such signal results. The experiment reported by Aveling and Hargreaves was cited to illustrate the effectiveness of spoken language in establishing hand rigidity. A reading of the instructions used by these investigators was followed by the presentation of results derived by combining the percentages obtained from groups of boys and girls. It was stated that 49 per cent of a group of grammar school pupils could not close the hand made rigid by verbal suggestion.

One day after this lecture the university newspaper, which is distributed to the mail box of every student, printed an article on suggestibility. It occupied one fourth of a column in the lower

[1] Seashore, C. E. Measurements of Illusions and Hallucinations in Normal Life. Studies from Yale Psychol. Lab., 1895, III, 1–67.

[2] Aveling, F. and Hargreaves, H. L. Suggestibility With and Without Prestige in Children. British Journal of Psychology, 1921, XII, 53–75.

left half of the front page and had an 18 point italic headline. The reader was informed that I had stated in a lecture that 98 per cent of college people are so suggestible that if you tell them their hand is rigid they believe it, also that of 420 college students examined all but five were suggestible. This article also quoted me as saying, "Psychologists have arrived at the conclusion that 98 per cent of average students would blindly follow suggestions made casually or otherwise." In view of the falsity of all of these statements it was considered feasible to determine if a perusal of the press would vitiate the accuracy of report. Since the students in this psychology course expected to write an examination upon some phase of two lectures and an assigned reading, during the first fifteen minutes of their weekly recitation, permission was obtained to have each instructor read four questions, which dealt with the two experiments previously cited, at the close of the examination. Five instructors coöperated during recitations which were conducted at different hours on Thursday, Friday and Saturday. The students were requested not to discuss the questions or the answers and as far as I know the answers were not elaborated as a part of the class discussion.

The four questions used are of the determinative order. They are: (1) Who were subjects in the experiment on hand rigidity produced by verbal suggestion? (2) What percentage of these subjects was suggestible? (3) How many college students were used in the experiment on the illusion of warmth? (4) Did you read the article which appeared in The Minnesota Daily of Tuesday, January 19, 1926, entitled: "Wearing Leggin's? You're Suggestible, Says Psychologist."

Two classes of students yielded the material of this report, namely a class of students registered in the College of Science, Literature and the Arts and another class registered in the same college but who expect to enter the Business College in their Junior Year. There were about 430 S. L. and A. students in attendance at the first hour lecture and approximately 280 Business students at the third hour lecture. The fact that the two classes attended lectures at different hours and the consequent possibility that slight differences of presentation occurred, as well as the difference in the size of the two groups, seems to justify separate treatment. The reports from the S. L. A. students were divided on the basis of sex to ascertain if any differences in accuracy distinguish men and women. Since the Business group contained only 25 women their reports have been omitted. Three

groups of students, therefore, are considered: the Business men, the S. L. A. men and the S. L. A. women.

In compiling the answers to the questions previously enumerated only those reports were used which gave answers to at least three of the four questions; an answer to the fourth question was an essential condition for inclusion. This yielded returns from 155 Business men, 108 S. L. and A. men, and 224 S. L. A. women. Altogether 169 Business men answered question four but 14 either did not reply to the other questions or replied to only one of them. Similarly 402 S. L. and A. students answered question four but the reports of 19 men and 51 women were too incomplete to be used.

If we are to measure the influence of the press upon the accuracy of report we must compare individuals who have had similar data presented to them in lecture but who differ in that some have read an account which purported to duplicate the information but which instead presented a distortion, while others have not read the distorted statements. These two classes of individuals exist. Before presenting the numerical results it is emphasized that just as a student reporter unwittingly distorted the material of a lecture so other students, irrespective of a knowledge of the press article, might give replies identical with some of its content. The bases for error exist since the students had been introduced to a number of experiments in which reference had been made to the classification of college students, to the number 420 (trials, not college students) and to 98 per cent. Theoretically these sources of error are present for those who had or had not read the press. The question therefore arises, "Are those students who have read the press account less accurate than others who have not read it?"

Of the group of Business men 85 had read the press and 70 had not; 75 S. L. and A. men and 166 S. L. and A. women had read the press and 33 S. L. and A. men and 58 S. L. and A. women had

TABLE I

THE NUMBER AND PERCENTAGE OF STUDENTS—BUSINESS MEN, S.L.A. MEN AND S.L.A. WOMEN—ANSWERING THE THREE QUESTIONS STATED IN THIS REPORT

	Business Men		S.L.A. Men		S.L.A. Women	
Question I	No.	Per cent	No.	Per cent	No.	Per cent
Not read press.....	70	100.0	28	85.0	55	95.0
Read press	85	100.0	72	96.0	162	97.0
Question II						
Not read press.....	66	94.3	28	85.0	54	93.0
Read press	84	98.8	69	92.0	157	94.5
Question III						
Not read press.....	69	98.6	31	94.0	41	70.7
Read press	82	96.6	63	84.0	127	76.5

TABLE II

THE NUMBER AND PERCENTAGE OF STUDENTS WHO EITHER ANSWERED THE QUESTIONS CORRECTLY OR IN TERMS OF THE PRESS REPORT

	Business Men		S.L.A. Men		S.L.A. Women	
Question I	No.	Per cent	No.	Per cent	No.	Per cent
Lecture answer						
Not read press.....	52	74.3	19	67.9	38	69.1
Read press	51	60.0	29	40.3	83	51.2
Difference between percentages and PE_d.....		14.3±5.04		27.6±5.38		17.9±4.97
Press answer						
Not read press.....	14	20.0	3	10.7	11	20.0
Read press	29	34.1	40	55.5	69	42.6
Difference between percentages and PE_d.....		14.1±4.7		44.8±5.6		22.6±4.4
Question II						
Lecture answer						
Not read press.....	23	34.8	11	39.3	14	26.0
Read press	24	28.6	14	20.3	34	21.6
Difference between percentages and PE_d.....		6.2±5.2		19.0±7.0		4.4±4.6
Press answer						
Not read press.....	6	9.1	4	14.3	16	29.6
Read press	24	28.6	23	33.4	53	33.8
Difference between percentages and PE_d.....		19.5±4.1		19.1±5.9		4.2±4.9
Question III						
Lecture answer						
Not read press.....	48	69.6	14	45.1	14	34.2
Read press	40	48.7	17	27.0	23	18.1
Difference between percentages and PE_d.....		20.9±5.3		18.1±7.1		16.1±4.9
Press answer						
Not read press.....	3	4.3	2	6.5	3	7.3
Read press	10	12.2	7	11.0	19	14.9
Difference between percentages and PE_d.....		7.9±2.9		4.5±4.1		7.6±3.4

TABLE III

THE NUMBER AND PERCENTAGE OF STUDENTS GIVING MISCELLANEOUS ANSWERS TO THE QUESTIONS

	Business Men		S.L.A. Men		S.L.A. Women	
Question I	No.	Per cent	No.	Per cent	No.	Per cent
Not read press.....	4	5.7	6	21.4	6	10.9
Read press	5	5.9	3	4.2	10	6.2
Question II						
Not read press.....	37	56.1	13	46.4	24	44.4
Read press	36	42.8	32	46.3	70	44.6
Question III						
Not read press.....	18	26.1	15	48.4	24	58.5
Read press	32	39.1	39	62.0	85	67.0

not read the press article. Since some students did not answer all three questions relating to the data given in the lecture the percentage of students giving the lecture answer, the press answer, or a miscellaneous answer, is based upon the total number answering each particular question. Table I indicates the number and percentage of students in each group who answered each question. The quantitative results obtained are presented in Tables II and III. Table III, which summarizes the miscellaneous answers, that is, answers which do not correspond to either the lecture or the press account, is presented separately in order that in Table II the differences in report existing between students who have read or have not read the press may be given emphasis. If this division of results is noted it will be evident that the sum of the percentages for any one group and for each of the three questions will equal 100 per cent when the figures in both Tables II and III are combined. Thus reference to the Business men who have not read the press shows for Question I that 74.3 per cent gave the lecture answer, 20.0 per cent gave an answer identical with the press, and 5.7 per cent gave a miscellaneous answer.

A perusal of Table II shows that in answer to all questions pertaining to the lecture material the groups of students who have not read the press are more accurate reporters than those who have read the press. There is no exception to this statement. Of the eighteen differences given in the table six are approximately three times the probable error of the difference and six are approximately four times the probable error of the difference. The conclusion seems justified, therefore, that the factor which differentiated these groups of students is the knowledge of the press article by the less accurate groups. Reading the press article yields these contrasts when certain conditions of stimulation might be expected to keep the differences in report at a minimum—such conditions for example as, the presentation of the data by lecture required a longer time than that by the press, the repetition of facts in the lecture with verbal and written emphasis, and the transcribing of the data in notebooks for review.[3] The data do not indicate what rôle the press exerts in the formation of attitudes nor do they demonstrate the extent to which beliefs are established when the only source of information is the newspaper. A small number of students, whose answers are not included in

[3] A comparison of the difference in accuracy between groups of students in retention tests who used notes and those who did not take notes in a lecture is reported by H. E. Jones in Experimental Studies of College Teaching. Archives of Psychology, No. 68, 1923.

the tables, indicated their absence from lecture and then stated that according to the "Daily" the answers were: here followed a recital of the newspaper report with a fair degree of accuracy.

Not all of the questions differentiated equally well those who had or had not read the press. Question I most clearly indicated the superiority of the students who had not read it, the correct answer being Grammar School pupils and the press report being College students. Four of the six differences included under Question I are approximately, or are greater than, four times their probable errors and the other two are about three times their probable errors. That the direction of the errors is toward the press account, when these students were ignorant of the press article, only emphasizes the confusion which arises for some students when several experiments are reviewed by the lecture method. Table III shows that university students in answer to a simple question are not likely to give a miscellaneous answer when definite groups of subjects such as grammar school pupils and college students have been referred to in a lecture or the press.

Two of the questions, namely Question II and III required a numerical answer. We note, with one exception, which is the reply to the third question by the Business men who had not read the press, that the reports upon quantities show great inaccuracy. If we select from Table II the results obtained from the S. L. A. students who have not read the press we note that about 33 per cent of the group gave the correct answer to Question II, which required an answer in terms of percentage, and that to Question III, which required the number 8 for the correct answer, approximately 40 per cent of the group answered correctly. In contrast, about 70 per cent of these students answered Question I correctly, which question did not involve a quantitative answer. When numerical answers are required both those who have read the press and those who have not read it tend to give a miscellaneous answer more frequently than one which repeats figures given either in lecture or in the newspaper article. This fact is emphasized in Table III. In general when quantities are involved, under the conditions of this investigation, about 50 per cent of the reports are fictitious since they indicate neither the content of the lecture nor of the press.

The data have been analyzed to discover if rumor might have affected the results since the answers to the questions were obtained from classes which met on Thursday, Friday and Saturday, that is three, four and five days after the lecture. Although no

detailed account will be given, the reports obtained on each of the three days were treated separately and compared to discover if students were more accurate on any one day. No consistent differences were found, sometimes more students in the Thursday classes gave the right answer to one question while a greater percentage of the Friday or Saturday classes excelled on another question. As a rule the differences in accuracy between classes meeting on these three days were very small. It does not appear from these slight differences that rumor vitiated the results.

A comparison of the reports of men and women which takes into account all of the answers shows more S.L.A. men than S.L.A. women gave accurate answers, yet in no contrast is the actual difference between the percentages more than two and a half times the probable error of the difference. As a rule the differences are very small, more often in favor of men but sometimes indicating that a greater percentage of women answered correctly. The conclusion that there are no consistent or significant sex differences seems justified.

In summarizing the material of this paper we may say that the data presented show that groups of college students who have not been subjected to the errors of a newspaper report are consistently more accurate in their answers to specific questions which deal with the facts distorted than are other groups of college students who have, perhaps unwittingly, formed contradictory habits through the medium of the newspaper. Furthermore, they yield corroboration of other studies upon two points, namely, (1) that reports which involve numerical statements are less accurate than those which are non-quantitative in character and (2) the differences in report between the sexes are negligible. They also show to what extent a press article can displace information disseminated by the lecture method.

IS *RAPPORT* AN ESSENTIAL CHARACTERISTIC OF HYPNOSIS? *

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IN SPITE of Bernheim's repeated declaration that there is no hypnosis, there is only suggestion, a tradition has grown up giving hypnosis a syndrome of essential characteristics. Among these characteristics are *rapport*, catalepsy, post-hypnotic amnesia, and the carrying out of post-hypnotic suggestions. Really, then, the question whether *rapport* is an essential characteristic of hypnosis is part of a larger problem: whether the traditional picture of hypnosis, as shown in a scientific demonstration, say, by a psychologist before his class in abnormal psychology, is not an artifact of the methods of the operator, of his presuppositions, and of the expectations which, somehow, the subject has in mind. However, it is very difficult to differentiate the directions which are essential to the induction of hypnosis, from the directions which would make that state conform to the classical, orthodox type of hypnosis as described in the books, and thereupon elicited in their subjects by those who read the books.

It is exceedingly rare for a subject to come to the hypnotist without certain ideas as to what will happen to him in the trance state; and if he does come without preconceived ideas, the hypnotist forthwith begins to tell him what to expect—if not *before* the actual hypnotizing takes place, at least *during* the course of it. Our whole technique of relaxing, even, is a traditional way of narrowing the form of hypnosis and forcing it into certain channels. Mesmer did not ask people to relax, and the trance that his subjects fell into had little resemblance to sleep. It was more like a hysterical fit. The logic of hypnotists up to the present is about as follows: Having told the subject that he is to lie still and think of nothing but the tones of the operator's voice, they predicate of the hypnotic state itself the *rapport* that is a specific carrying out of this suggestion. The same is true of post-hypnotic amnesia. Psychologists lead the subject to believe that he is not

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to notice what he is doing, that he is too much relaxed to care what he is saying or hearing; and then they proclaim as true of every genuine hypnosis the amnesia which was thus directly or indirectly suggested.

By far the most important theoretically of the so-called phenomena of hypnosis is *rapport*. If every genuine hypnosis is accompanied by a very close relation between the operator and the subject amounting to dependence of the latter upon the former, McDougall's so-called "moral influence", one's theory of hypnosis would be quite different from what it might be if the connection between the two principals is merely a concomitant of the method of hypnotizing or of the expectations the subject has when he is hypnotized.

In regard to the essentiality of *rapport* the following questions seem important: (1) Do all experimenters find *rapport* occurring in hypnosis without inducing it suggestively? (2) Can a subject annul *rapport* by resisting the hypnotist's suggestions without thereby terminating the hypnotic trance? (3) Does *rapport* exist when the subject expects it, and is it lacking when the subject does not expect it? (4) Can a subject be either in or out of *rapport* according to his prehypnotic autosuggestions? (5) Can a subject be hypnotized by an experimenter, thereupon exhibit all the phenomena of somnambulism and at the same time, in spite of all the operator can do, be in *rapport* with some one else or with some other set of stimuli?

Answering the first two questions is not difficult. Many experimenters, among them Braid, Moll, and Bramwell, consider *rapport* the result of suggestions from the operator or of self-suggestions of the subject arising from his idea of hypnosis, and not as a characteristic inhering in artificially induced somnambulism. So, too, many authors report the rejection by subjects of suggestions distasteful for any cause, sometimes for no apparent cause, without thereby necessarily terminating the hypnotic séance. The other three questions form the starting point of the experiments reported herewith.

The experiments fall into three series. The first deals with some observations made during tests given for another purpose, which have been published in the *American Journal of Psychology*, Vol. XXXVI, 1925, pp. 214–233. The second and third series were planned to give a technique which might be applicable to other tests in the field of hypnosis. In all of them subjects were used in whom the speaker could easily and consistently produce all the

phenomena of somnambulism, and who on awaking, ordinarily, reported that they had been asleep. Altogether, four subjects were used, all of whom were volunteer subjects.

Series One. Emerson Hall, Cambridge, Mass., Dec. 24, 1922, subject M. Just before sitting in the chair to be hypnotized one morning this somnambulistic subject asked the writer, hereinafter called E., to be sure to bring the experiment to a close at 12:00. The E. assured the S. that he would be awakened before 12:00. At 11:55 the E., noticing that the tests would be incomplete at the time agreed upon, tried to prolong the session by suggesting to the S. that his sleep would become deeper and deeper, and that he would not awake until ten minutes had passed. In spite of the means thus employed the S. began to toss restlessly, and at the striking of Memorial Hall clock awoke. As soon as he was fully conscious, and had understood the nature of the case, the S. composed himself to be hypnotized again. But in spite of his apparent coöperation and his avowed purpose the S., who had always been very easily inducted into the somnambulistic state, and often two or three times in one sitting, could not at this time be rehypnotized. After three vain attempts to go to sleep again, the S. confessed that, fearing he might be kept at this session so long as to miss a luncheon engagement at 12:30, he had before coming to the room given himself the autosuggestion to awaken at the sounding of twelve o'clock. In this experiment we see autosuggestion, given prior to hypnosis, breaking up the *rapport* of the hypnotic session and even preventing its being reëstablished.

Series Two. This series of experiments was performed in the E.'s office, Peabody Hall, Louisiana State University, during April, 1926. Two Ss., previously found to be somnambulistic, were used. For the convenience of the Ss. as well as for his own, the E. made a list of phenomena that he would elicit in each future séance. From this list the Ss. were to pick out one item on which to give themselves autosuggestions to see if they could overcome the hypnotic suggestion in regard to that item. No intimation was given as to the E.'s idea of the relative power of heterosuggestion and autosuggestion. They were simply to see what they could do by way of giving themselves suggestions. The schedule of items from which the two Ss. were to choose was as follows: (1) Inability to open the eyes. (2) Inability to unclasp the hands. (3) Inability to recall one's own name. (4) Deafness to everything but the E.'s voice. (5) Inability to raise the feet from the floor. (6) Analgesia. (7) Visual hallucination. (8) Inability to

walk. (9) Carrying out of post-hypnotic suggestions. (10) Post-hypnotic amnesia.

To make the experiments definite the Ss. were asked by the E. to write their autosuggestions for a given seance upon a sheet of paper, put the paper into the inside coat pocket, and deliver it to the E. after the session was over. In the meantime, in any given séance, the E. went through the whole series of actions listed above, as well as some others, in a bonafide manner, giving all the suggestions with the same force, except when he saw a tendency to resist the suggestion, in which case the efforts to have his suggestions carried out were redoubled.

Experiment 1. April 16, 10:00 A.M.; Subject H. During the séance all suggestions were carried out with the exception of being analgesic. When the E. stuck the S. as usual with a sharp skewer, the S. winced considerably. On repetition of the suggestion and renewed pricking, the painful expression became more pronounced. When challenged as usual, "Do you feel anything?", the S. said, "It hurts". After being awakened, the subject wrote the following report: "I have no definite remembrance of anything after being put in the chair. I have a vague remembrance of some object hitting my hand a few times. It seems as though I was told that I was not to feel it, but was fighting that order and was straining my senses to feel it. The object seemed like a pencil point, rather used and blunted. It was not painful in the least." In this experiment it is to be noted that not only did the S. react strongly in hypnosis, contrary to the idea of *rapport*, but the only memory left of a long séance was the one concerning his autosuggestion, remembered despite the E.'s orders. The signed statement of the S. handed to the E. after waking was as follows: "While in a state of hypnosis I will obey all commands except that of becoming insensible to pain."

Experiment 2. April 16, 2:30 P.M.; S., R. At the end of the experiment the S. handed the E. a slip of paper written prior to the session, bearing these words: "I *can* open my eyes." That autosuggestion explains why the E. tried in vain to seal the S.'s eyes, ordinarily one of the simplest and easiest of orders to carry out with any good subject. The command was repeated several times, twice with the suggestion of tightening of the lids by the laying of the E.'s hand on them. Still the S. easily opened his eyes. When the eyes were thus opened against the hypnotist's orders, the S. hallucinated dogs in the corner of the room. In his written post-hypnotic report the S. disclaimed all memories except that he

opened his eyes and saw some dogs. There was post-hypnotic amnesia for all items not connected with the autosuggestion. It is to be remembered that in all these sessions the E. enjoined post-hypnotic amnesia. In this experiment, again, there is setting aside of *rapport* in favor of a prior autosuggestion. Up to this time, however, there is only one activity-pattern involved in this hypnotic rebellion.

Experiment 3. April 16, 3:30 P.M.; S., H. As usual, the E. did not know what autosuggestion the S. had given himself until after the session was over, and consequently was somewhat surprised to see that every command was obeyed without any show of resistance. After the session was over, however, the operator was even more surprised to find that the S. remembered every thing that had occurred during the whole séance. The S.'s written report after waking covered two pages and cannot be given in full here. Excerpts are as follows: "Everything in this séance seemed clear after being awakened, whereas I can scarcely remember anything of the one just previous to it (which had taken place during the forenoon). * * * I was pricked with a pin on both hands, being ordered to move the hand touched. I could not move the 'dead' hand, although I could feel the pin-prick (It did not hurt in the least). * * * I was told that I was one-armed and that my arm had been torn off. I had a terrible sensation of pain at that time in my shoulder where it seemed that the arm had been unjointed when you 'pulled it off'." The S.'s autosuggestion was: "While in a hypnotic state I will obey any and all commands except that I forget everything or anything that goes on." In this experiment we note that the self-suggested attitude to remember, assumed in defiance of the direct commands of the E., given in this séance as well as in all sessions, modified the kind of *rapport* in hypnosis and frustrated the command to forget all the events after awaking.

Conclusions from Series Two. These three experiments show that the two Ss. could on a definite point determine their hypnotic behavior and post-hypnotic amnesia through a prior autosuggestion, in spite of the suggestions given in hypnosis. Thus the *rapport* was modified or annuled for one item of the hypnotic activities. If it be assumed that the Ss. had got the idea from the ordering of the experiments that the E. was willing or anxious for them to resist the suggestions given in hypnosis and act on their own pre-arranged plan, still the contentions of this paper are favored, because, if that be the fact, the expectations aroused in

the subjects before coming to the hypnotic session were determinative of their behavior in hypnosis, and *rapport* (or its lack) was not necessarily established during the séance, but rather before hypnosis was induced.

SERIES THREE. This series was like the preceding one in general, but differed from it in the following ways. The E. asked Professor I. P. Foote of the University (hereinafter referred to as A.) to coach three subjects in giving themselves autosuggestions somewhat on the order of those already mentioned. The E. had told the Ss. that A. had some experiments to work out with them; nothing more. Actually, however, unknown to the Ss., the E. and A. elaborated the type of suggestions the Ss. were to give themselves. But for any one séance the E. had no idea of what to expect by way of autosuggestive behavior. Since this series is much more important than the others, the proceedings will be given in more detail. This is possible because A. kept a complete record of what went on. The Ss. in this series were the two used in the preceding series and another somnambulistic S., G.

Experiment 1. May 4, 2:10 P.M.; S., H. Before the experiment began, A. had asked the E. to try to make the S. in hypnosis hallucinate some buff colored cards and some blue cards as other colors. A.'s record for this part of the session is as follows: "E. shows S. a blue card, asks what is the scene. 'Not a scene but a card.' What is it? 'A blue card.' E., showing the same card, See the white card. 'Not white, blue.' What scene is on the other side? 'That is not a scene.' S. hallucinates a city, New Orleans, big buildings, but when shown a buff card and told that it is white, he says it is not white. On being asked what color it is, responds 'Tan'." A. and the S. had before coming to the room arranged the following test to be made in hypnosis: S. will submit to hypnosis normally. During hypnosis A. will show S. a card. If it is blue, S. will on being awakened write on it, "Peabody Hall". If it is not blue S. will write "Failed". The S. understood that he was to retain his ability to differentiate colors. Although the E.'s not knowing the details of the test A. had planned, E. brought the experiment to a close before A. could perform his part in it; but anyway, the results show that the S. carried out his autosuggestion about retaining the ability to discriminate colors, and this in spite of the efforts of the E. to override it and retain perfect *rapport*. All S. remembered of a long session was that he had been shown two cards, one dark blue, and one tan (correct).

Experiment 2. April 22; 3:15; S., R. His prior autosug-

gestion was: "I will do everything I am told except I will be able to walk and if told not to, I will remember everything that happens." During the hypnotic séance the S. carried out all suggestions as usual, until he was told that he could not walk; whereupon he moved off easily, and after being stopped and assured again that his feet were glued to the floor, he still walked. Moreover, the S.'s post-hypnotic report included all the items of the session with the single exception of having been pricked with a pin. But what he did in regard to a certain suggestion he could not in every case recall; for example, he remembered having said that he was at home upon being asked in hypnosis where he was, but he could not recall whether or not he had been able to bend his arm when challenged to do so. Inasmuch as the S. had been ordered to forget all that happened, we see that *rapport* was overcome not only in resisting the single suggestion of inability to walk but also in the S.'s taking the attitude of remembering the proceedings.

Experiment 3. April 22, 2:15 P.M.; S., H. In this experiment things went well until suddenly the S. simply did not respond to any of the operator's directions. The E., after trying all the usual tricks of the trade to no avail, finally in disgust awoke the S. The S. thereupon handed the E. the following statement: "While in the hands of E., I will do anything suggested up to and including the third suggestion. After that I will respond to none except the command to wake up." A.'s record of the session showed that such had been the case. The S.'s memory for the first *two* items was fairly clear; for all the rest it was only hazy. The record made by the S. after awaking, among other things, contained the following statements: "Everything after the third suggestion was just like something holding me down. Just as if you were telling me I couldn't, and I said 'He doesn't know what he is talking about.' After I took a step or two I could go very easily. The post-hypnotic suggestion was something about some ink; just didn't pay any attention to it, did not matter whether I heard it or not, not paying attention to anything; just lazy. When you made by arm stiff (the second suggestion), it was just like having cramps in swimming, as if I had been sleeping on the arm. I remember something about having been told that there was something out in front of me, but inside seemed to say 'Nothing out there'. * * * I had given myself no autosuggestion about remembering. Things are not so clear as when I had suggested to myself before hypnosis that I would remember. I was really

hypnotized; toward the last not so deeply as at first." This S. was slightly negativistic after the third suggestion; instead of simply ignoring the challenge, he would do what he had just been told he could not do.

It is very likely that the subject remained deeply hypnotized throughout this experiment; even though he was out of *rapport* for three-fourths of the time.

Experiment 4. May 4, 4:00 P.M.; S., R. What happened in this experiment is forecast in the prior autosuggestion, which the operator at the time knew nothing about: "I will submit to hypnosis. When fully hypnotized I will not respond to suggestions from E., but will respond to A. as follows: when A. says one, I will raise my right arm shoulder high. When A. says two, I will relax right arm. When A. says three, I will stand. When A. says four, I will about face. When A. says five, I will sit down. I will awake when three taps are given by A." And so the experiment actually went, in spite of the strenuous efforts of the hypnotist to make the subject obey. There was no resistance to E.'s suggestions; they were simply ignored entirely. The S. after hypnosis remembered nothing that E. had said after talking to him about relaxing, but he did remember having heard A.'s voice. He described his procedure during hypnosis in the following words: when he came into the room, he "just had the suggestion I had given myself on my mind, and kept it on my mind during the hypnosis; I did not have to think of it during the hypnosis—I was not thinking of anything. I had no difficulty in knowing what the signals meant." Here, apparently, we have a genuine hypnosis void of *rapport* with the one doing the hypnotizing, but showing *rapport* with one who had been previously selected by the S.

Experiment 5. A.'s record shows that the S. would submit to hypnosis by E., would thereafter respond to no suggestions from E., but would respond to A. as follows: 1 tap, stand; 2 taps, walk; 3 taps, stop; S. will awake on hearing a loud noise. In this experiment, again, not being in the secret, the operator tried in vain to get the S. to obey his orders. When the S. started any movement, the E. tried to prevent it. The S.'s memory for this session was very defective. He remembered nothing that the E. said after the taps began to sound. "At the time I heard the first tap, I just had the impulse to rise; I don't know what you said to me." However he did remember some of the occurrences before that. "At suggestion of the E. I felt quite comfortable and eventually consciousness. E. told me that my feet were glued to the floor

that I couldn't lift them. I knew very well what I was trying to do, but I couldn't find my feet. He also did something to my arm that caused me to lose it. At length I heard a tap and knew that I must rise, at two taps I knew that I must walk and three taps I had to stop. Some one made a very loud noise which caused me to waken and it seemed to frighten me for just an instant." The truth is that the loud noise caused a strong shock to the S., who acted just like one wakened from a nightmare, and had to be calmed. A more genuine state of fear could not be imagined. The S. in reply to a definite question stated that he had been asleep and had been dreaming. In this genuine hypnosis, the S. was in *rapport* with the E. only on the first two items, albeit he had told himself that he would not respond to E. at all. As the taps began to sound, just after the second suggestion had been carried out, the S. paid no attention at all to the E. This behavior may indicate the necessity in hypnosis of some kind of direction, not limited to orders from the hypnotist, on the part of those unaccustomed to controlling their own thoughts by autosuggestion.

Experiment 5. May 6, 3:00 P.M.; S., G. The course of this session may be stated in the S.'s post-hypnotic report: "At the suggestion of E. I went to sleep. I was conscious of what he was doing and telling me until suddenly I heard two taps, and then I lost consciousness of him. I then felt an impulse to raise my right arm and let it fall again. Then I wanted to tap my right foot and after tapping it three times, I no longer wanted to tap it. My left leg then felt that it should be stretched out, and I remember stretching it out. The next thing I knew I heard three taps and the E. was by my chair again. [Really, of course, he had been there all the time trying to prevent these mechanical-doll movements, talking firmly and loudly.] He had me drawing circles with my left arm, made my fingers clench in a tight grasp, made me get up and walk and while I was walking he told me that my feet were glued to the floor, and it seemed that they were. E. then told me that I would wake up when he counted to the number five, and before he counted that far, I could feel myself taking on more life. Then when he said five, I felt fully awake. I had not given myself any suggestion as to remembering." The definite lacunae in the S.'s memory had to do mainly with what the E. did while [illegible]e S. was out of *rapport* with him. But in addition, the S. dis-[illegible]imed all memory of a very loud noise (a large desk having been [illegible]d and let fall), and knew nothing of the repetition of the whole [illegible]s of taps. In fact the S. was very much surprised to learn

that the series of signals had been given to him twice, and that he had responded again in the same way as at first, going through the movements mechanically while he was ignoring the urgent commands of the E. However, items that the S. did not remember included a test for analgesia, which was positive, and a clear-cut hallucination of lions.

Judged by all available criteria (the present writer thinks that nothing can beat the post-hypnotic report of a trustworthy subject), this was a bonafide hypnosis in which the S. was in and out, back in and then out of *rapport*, and then finally back into *rapport* with E.

Conclusions. The E. considers these four Ss. as truly in somnambulistic hypnosis as any that he has worked with or has seen others work with. The Ss. themselves by their own actions in hypnosis and their declarations afterwards confirm the judgment that they were deeply hypnotized. If other experimenters verify the results here reported, the conclusion may then be made that, at least in some cases, autosuggestions can be more powerful than heterosuggestions, and that a genuine hypnosis can exist without the semblance of *rapport*. An experimenter can hypnotize a subject who thereupon can be out of *rapport* with the experimenter and come back into *rapport* only if, as, and when he has determined before he was hypnotized. These conclusions favor the theories of Badouin and the Psychoanalysts as against those of McDougall, Bleuler, and others. It seems, too, that in absence of a suggestion to remember, post-hypnotic amnesia is directly proportional with the amount of *rapport*, and consequently inversely proportional to the number of autosuggestions carried out in hypnosis.

MOTOR CONSCIOUSNESS AS A BASIS FOR EMOTION

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THE importance to psychology as a whole of obtaining a tangible psychoneural hypothesis of emotion can hardly be exaggerated. Such an hypothesis would appear to be of especial potential value in the fields of abnormal and social psychology where emotional phenomena seem to be of basic importance. At the moment, emotional investigators find themselves at sea between the Scylla of James-Langeism, and the Charybdis of youthful-minded adventurers in psychological research who would persuade us to hoist the Jolly Roger, abandon all theories, and all previous results, and undertake a statistical analysis of how all people react under all possible circumstances. These young pirates urge the irrefutable thesis that no knowledge is absolute, and themselves conclude that any attempted formulation of disconnected emotional data into anything resembling scientific law must be nothing short of maudlin.

Such new-found insistence upon the sanctity of unrelated fact is commendable in so far as it places just emphasis upon objectivity of research method. But the history of psychology's elder sisters among the sciences, and even of psychology herself, reveals a certain dependence upon constructive theory. The laws of Newton, for example, have received important modification at the hands of Einstein and others; yet who can doubt the central importance of Newton's hypotheses to the growth of physics and allied sciences? The atomic theory may be inadequate as a formulation of present-day chemical data; yet modern chemistry has climbed to its present height upon the scaffolding of that same atomic theory. So it is with the James-Lange theory of emotions. Psychology may be just at the point of outgrowing it, (thanks to material furnished by the physiologists and neurologists), but must we abandon ourselves, forthwith, to an orgy of unscientific disorganization?

Clearly, efforts are being made to drive the psychology of emotion in that direction. There is a certain self-important ease and nonchalance to be obtained by the method of putting out one's research results bare of theoretical analysis that has its appeal.

And there is less danger of being contradicted. Yet if psychology is to become the same sort of science that neurology and physiology are, for example, it seems to be necessary for somebody to take a chance and construct basic theories. It is with this attitude that I venture to put forward one or two of the suggested formulations of emotional data which have resulted from the last four years' devotion to theoretical research.

I—PROBLEM

I have already pointed out elsewhere [1] that James' theory of emotion received two radically different formulations at his hands. The first formulation was contained in the simple statements: "We are afraid because we run away. We are angry because we attack." With this theory, duly qualified, I am in entire agreement, and the next section of this paper will be devoted to an attempted elucidation thereof.

When faced with the necessity of explaining his radical-sounding thought, however, James slipped over into an entirely different theory of emotion which agreed, substantially, with that of Lange. It is easy to see how James was forced into this contradictory transition. He had observed, introspectively and objectively, that bodily changes "followed directly the perception of the exciting fact", and that "awareness of these changes as they occur, IS the emotion". But when called upon to state how we could be aware of the changes occurring in our organism, as they occur, James found only sensory terms in existence in which to describe the awareness in question. If we didn't have sensations of the immediately resulting bodily changes, how could we become conscious of them at all? So James was compelled to suppose that the initial bodily changes stimulated somatic sensory end organs, in muscles and viscera, setting up a second series of reflex arcs productive of bodily sensations. Shrewdly forecasting, perhaps, the reports of Lennander [2] and others concerning the paucity of visceral sensory mechanisms, James did not place the same emphasis upon visceral sensation as content of emotion as did Lange. Nevertheless, he accepted both visceral and kinaesthetic sensations as characteristic constitutents. In so doing, we may note that James denied his primary thesis that "emotion is the awareness of these (bodily) changes *as they occur*". If emotion is made up of sensation, then the important sensations are those set up as a result of initial bodily changes, and these sensations can only occur *after* the primary bodily changes. The refutation

of this sensory-content formulation of the James-Lange theory, then, could be accomplished by showing that emotion persists after the sensations of which it was said to be composed have been eliminated.

This work was undertaken by Sherrington [3] who performed appropriate spinal transections upon dogs, eliminating visceral and most kinaesthetic sensations following emotional stimulation of the animals. Behavioristic evidences indicated that the dogs' emotions remained unchanged. One animal was stimulated with dog-meat, a stimulus never applied to this dog prior to operation. Evidences of what Sherrington calls "disgust" immediately appeared. Neither memory of previous sensations nor previous conditioning of symptomatic behavior could have taken place in this instance. Sherrington concluded that emotion might be supplemented by sensations of bodily changes, but was not essentially composed of such sensory content.

Goltz proved, conversely, that all emotions but "rage" did disappear after decerebration of dogs.[4] No pleasure, sex response, or even appetitive enjoyment of food could be aroused in an animal thus prepared. From various supplementary data, Goltz concluded that "rage", also, was a product of the central nervous system, but at a lower level than that required for the other emotions.

Another approach to the problem of determining the rôle that visceral sensations play in making up emotion was made possible by the work of Langley,[5] who described the "autonomic" innervation of the viscera. Langley's description indicated that if any part of the viscera were adequately stimulated, large allied areas must undergo identical changes (which, of course, must produce identical sensations).

Cannon [6] was the first to apply this neurological fact to criticism of the James-Lange theory. After proving experimentally that practically identical visceral changes did, in fact, occur during "rage", "pain", and "fear" responses of animal subjects, Cannon pointed out that the conscious qualities differentiating these "major emotions" could not possibly depend upon sensory differences which did not exist. Cannon concluded, as had Sherrington, Goltz, and others, that emotional "response is a *pattern reaction*, . . . in which impulses flash through peculiarly coöperating neurone groups of the central nervous system, suddenly, unexpectedly, and in a manner not exactly reproducible by volition, . . .".

To an unprejudiced mind, not "brought up on" the James-

Lange theory in its commonly accepted formulation, these physiological results would seem conclusive refutation of the idea that emotion consists of sensation. One loophole, however, has been pointed out frequently in discussion by those who still cling to the sensation theory. Though any given emotion, experimentally tested, may be shown not to depend upon sensation, may not the emotion have been built up, originally, by compounding of sensations containing minute differences from other major emotional compounds, and subsequently remembered in connection with that type of stimulus?

If so, the sensation compounds must have been manufactured prior to birth. For Watson has shown[7] that human infants are inherently equipped to manifest at least three responses of an emotional nature, "rage", "fear", and "love", without passing through preliminary learning process.

Thus we return, perforce, to James' simpler statement of his own theory: We emote in a given way because we act in a given way. And our awareness of our reaction *as it occurs* IS the emotion. Unless we choose, like Watson, to deny that "awareness" or "consciousness" constitutes a physical phenomenon which psychologists are called upon to describe, we find ourselves squarely faced with the same problem that forced James into that untenable sensory-content formulation of his theory which we have just discussed.

The problem is: How can awareness of reaction *as it occurs* be described in psychoneural terms?

II—MOTOR CONSCIOUSNESS THEORY

Does anyone know why it has become so uniformly the fashion to assume that all consciousness is sensory in its ultimate nature? Is not this denial of the existence of motor consciousness the real bugbear from which Watsonian behaviorists are fleeing in their insatiable insistence upon the importance of the *motor* aspect of of behavior? Watson, for instance, inveighs with particular emphasis against "such elements as *sensations*, and their ghosts, the images".[8] "This thing we call consciousness", he says, "can be analyzed only by *introspection*—a looking in on what goes on inside of us." And it is true, of course, that many very basic presumptions of present-day psychology have been adopted by tacit assumption upon originally faulty introspective evidence. Perhaps the nonexistence of motor consciousness may turn out to be one of these unwarranted, introspective limitations upon

psychological theory. We have already, in fact, adduced a considerable line of emotional evidence plainly pointing to unmistakable affective awareness of reactions *as they occur*. Let me defy Watson's categorical statement that consciousness can be analyzed only by introspection, by attempting an objective analysis of the case for the existence of motor consciousness on the basis of a previously suggested objective description of consciousness itself.

I have suggested in a previous paper [9] that inter-neuronic energy, supposed by Sherrington and other neurologists to possess entirely different characteristics from the disturbances propagated within the individual neurones, may be called "psychonic energy", and I made the further suggestion that there is considerable evidence for advancing the hypothesis that *psychonic energy is consciousness*.

In referring to the connective tissue between neurones, across which psychonic energy must be propagated, I followed the concepts of Langley, Herrick,[10] and Sherrington,[11] who term the inter-neuronic barrier "junctional tissue", or "membranes of separation"; and for psychological convenience I suggested the term "psychon" as designating any particular portion of such tissue energized in effecting a given synaptic connection. Since writing the paper referred to, an eminent neurologist has called to my attention the work of Marui [12] who reported that he had seen, under the microscope, evidence of minute, protoplasmic threads connecting the "terminal feet", or "club endings" of the axon fibers of one cell with the intracellular neurofibrils of the cell-body of the adjacent neurone. Though I had assumed that the work of Bartelmez,[13] who attributed Marui's report to artefacts produced by formol in the staining solution, was more authoritative than that of Marui as coming from a more mature investigator, the exact structural description of the connective synaptic tissue would, I believe, make little difference to the theory of consciousness under discussion. Whether the psychon be thought of as a sort of sheet electrode, possibly forming part of the surface membranes of adjacent nerve fibers, or whether it may eventually be described by comparison to the tungsten filaments of electric lamps, the evidence for placing consciousness at the synapse remains virtually the same. That evidence may easily be reviewed by careful comparison of synaptic phenomena with the basic phenomena of consciousness.

Nor would the objective evidence for the existence of motor

consciousness be any the less striking if we were to adopt other physical theories of the nature of consciousness, such as the frequently accepted idea that consciousness inheres in every propagated neural disturbance. The general plan and structure of the central nervous system, and other points to be considered in favor of motor consciousness would remain exactly as applicable. Let us consider these points of objective evidence very briefly.

1. Biologically, motor function is primary, and sensory and connector mechanisms secondary. Parker[14] says: "To state this conclusion in the terms used in the earlier part of this discussion, sponges may be said to have among their cell combinations effectors, but no receptors or adjustors. They mark the beginnings of the neuromuscular mechanism in that they possess the original and most ancient of its constitutents, muscle, around which the remainder of the system is supposed subsequently to have been evolved." "This last conclusion is reinforced", says Herrick,[11] "by citing a number of cases in the higher animals where muscle may act independently of nerves, as in the human iris." Forbes,[15] in fact, has gone so far as to point out that muscle possesses capacity for the "single type of disturbance which seems to be a phenomenon common to nerve and muscle fibers".

It would be most unexpected, though of course not impossible, to find that the motor element, of which sensory and connector tissues remain but slightly divergent modifications, should itself completely fail of representation in the joint product, consciousness.

2. Motor neurons, in the central nervous system of human beings, are distinguishable from sensory neurons both as to cell structure and as to type of synaptic organization.[16] Motor cells have been shown to possess larger cell bodies, with a richer supply of chromophilic substance. In fixed and stained preparations, this substance is seen arranged in definite, discrete granules, and not diffusely, evidently for the sake of facilitating more rapid and powerful nervous discharge. The motor pathways, moreover, contain a minimum number of subsidiary synapses, the large and powerful groups of motor impulses thus sweeping onward to their appropriate organs of discharge with a minimum number of interruptions, once these impulse groups have won the right of way at the central synapses. The motor cells, in short, are constructed for carrying larger and more powerful units of energy; while the sensory tracts seem designed to carry smaller but more variegated impulse groups.

What reason is there to suppose that the smaller units of

psychonic energy constitute consciousness, while the larger, simpler units do not? Or, if consciousness is thought of as inherent in the nerve impulses themselves, why should more powerful accumulations of such impulses be supposed to have lost the conscious characteristic? Moreover, the contrast between motor and sensory impulse characteristics, just emphasized, naturally suggests the almost exactly corresponding contrast between the powerful but comparatively simple sweep of "major" emotions consciousness, and the less insistent but more variegated awareness of discrete sensations. If we find two types of neuron, two types of synaptic arrangement, and two types of impulse groups, what objective reason can be found for granting consciousness to one and denying it to the other?

3. Again, motor phenomena may occur independent of sensory stimulation. Any given impulse or battery of impulses may be blocked at its entrance to a common motor path, not by rival impulse groups, but by the previously existing chemico-physical conditions within the nerve center itself. If sensation is the sole element of consciousness, such phenomena could never attain conscious representation, for they could only result in absence of sensation on the arc of stimulation. Is such an absence of awareness of motor obstruction compatible with the commonly observed ability of the subject verbally to report the occurrence accurately?

4. Affective states accompanying motor discharge give every evidence of being far more diverse than the ensuing sensations of resulting bodily changes could possibly be.[16] Conversely, many investigators report great diversity of bodily changes (with necessarily corresponding diversity of sensory awareness of these changes) resulting from motor discharge accompanied by approximately uniform emotional states.[17] The emotional consciousness, in both classes of cases, is evidenced by verbal report, and also by observed *motor attitude, or set* of the subjects, both human and animal. It is amusing to note the naiveté with which various experimenters purporting to be utter disbelievers in consciousness, name a given emotion, and assume its existence in the subject solely on the basis of a motor attitude naturalistically observed without instruments of precision of any sort. Can it be that these cynical objectivists are depending upon their own *introspection?*

If, then, we somewhat less naïvely assume such reports to offer some degree of objective evidence in favor of the existence of emotional consciousness radically differing from resultant sensa-

tions, but closely agreeing with the motor attitude, or pattern of the primary response, it becomes exceedingly difficult to correlate such emotional states either with sensations or with the conscious relationships between sensations. It is very easy on the other hand, to account for such emotional consciousness if we are willing to correlate it with "motations", or simple units of motor consciousness and their interrelations in the primary motor pattern.

5. Affective tone may, apparently, be changed by altering the motor set, without the slightest change in associated sensations. In a series of experiments upon myself lasting over a period of ten years, I have three times succeeded in eliminating altogether the unpleasantness of severe toothache by changing my "subconscious", or "unconscious" motor set from one of resistance to one of complete acceptance of the stimuli imposed. Each time, this change of motor set has been objectively evidenced by faintness, pallor, and marked drops in systolic blood pressure; possibly to be accounted for by an opening of vagus channels of motor discharge hitherto closed against the pain impulses. (Twice the full unpleasantness returned upon resumption of resistant motor set.) Boring [18] and Carlson [19] both mention subjects in whom the unpleasantness of hunger pangs was absent. Instead appeared faintness, and passivity of motor attitude, nausea taking the place of food-seeking responses. I studied a subject of this type for three years, and succeeded in retraining her in such a way that hunger pangs now appear with very intense unpleasantness. The change in the subject's motor attitude, from passivity to extreme food-seeking activity, which has accompanied this restoration of unpleasantness is very marked, and is, to some extent, verified also by systolic b.p. readings. Another preliminary experiment, performed last year under my direction, was the change in attitude of a number of subjects toward stimulation with hydrogen sulphide, presented at all times in a perfume bottle as a new type of perfume.[20] No pleasantness could be induced. But one subject, owner of a restaurant, so far lost unpleasantness, following change of motor attitude from resistance to acceptance, that he failed to understand why several customers left his lunch room after the bottle had been freshly opened during meal hour.

All these results are very difficult (although perhaps not altogether impossible) to account for on the basis of changes in sensory consciousness alone. But the simple, obvious explanation would seem to be found in the assumption that there exists a basic

awareness of motations and their interrelationships. Conflicts of motation, produced by resistant motor set, seem unpleasant; while removal of motor conflict seems to result in corresponding removal of unpleasant consciousness.

6. I have already pointed out elsewhere [21] that the work of Head and Holmes [22] furnishes striking evidence of the dependence of affective consciousness upon freedom of motor outlet, and consequent increase in the number of motor conflicts and alliances taking place in the central nervous system. When the inhibitory effect of the cerebrum is removed, through thalamic lesion, overreaction and increase of affective consciousness simultaneously occur. I spent nearly a year trying to work out an explanation of this and similar phenomena without departing from the fashionable assumption that consciousness is made up of sensations and their interrelations, and nothing else. Herrick and other neurologists have spent a much longer period upon the same problem, faced with the same bugaboo of denial of motor consciousness.[23] Yet adoption of some such simple platform as the psychonic theory of consciousness not only permits, but necessitates acceptance of motor consciousness as the basis of affection. By doubling the number of psychoneural elements of consciousness accepted as basic, we do much more than halve our resulting complexities of psychological theory. All round-about influences of motor set upon sensation vanish from discussion, and motation may be treated with the same descriptive simplicity as sensation.

The crucial problem of emotional theory, analyzed in the preceding section, was: How can awareness of reaction *as it occurs* be described in psychoneural terms?

A simple answer, based upon evidence largely objective, and expressed in terms of an objective description of consciousness as psychonic energy, may thus be phrased:

Consciousness of emotional response, *as it occurs,* arises upon the motor psychons of the central nervous system where the type and extent of the characteristic affective reactions are initially determined. The awareness thus described is of purely motor variety, consisting of simple motations and of the consciousness of their interrelations.

SUMMARY OF THEORY

Consciousness is objectively described as psychonic energy, necessarily generated at every synapse in the central nervous system upon passage of impulses from neuron to neuron. The

connective, or junctional tissue at the synapses capable of giving rise to psychonic energy, is termed, at any individual synapse, a psychon.

Examination of structure and organization of the human central nervous system reveals two distinct types of cell structure, and two different types of general synaptic arrangement, sensory and motor. Psychonic energy arising upon sensory psychons has generally been termed sensation. It is suggested that psychonic energy arising upon motor psychons constitutes an equally basic category of consciousness, and may be termed motation.

Analysis of emotional theory reveals that James' original idea that we are aware of our initial reaction to an exciting stimulus *as the reaction occurs*, and that that awareness IS the emotion, has never been tested, because that idea became confused with the contradictory statement that emotion is sensation. Sherrington, Goltz, Cannon, and other physiologists, in disproving the sensory-content statement of James' theory, unanimously conclude that emotion consists of a distinctive pattern of neurons in the central nervous system, excited to characteristic activity by initial response to the emotional stimulus.

Application of this conclusion of the physiologists to James' original formulation of his theory can be made with perfect harmony if motation be accepted as a basic unit of consciousness on equal terms with sensation. Psychonic energy propagated across the psychons connecting together the distinctive central patterns of neurons supposed by Cannon and others to give rise to the emotion, would actually constitute the characteristic emotional qualities of consciousness so universally experienced. Such consciousness would be wholly made up of motor elements, though these would naturally be closely associated both with sensations of the stimulus situation, and with sensations of immediately ensuing bodily changes.

Emotion, on this thesis, might be defined quite simply as composed of designated groups of motations, characteristically combined. Primary emotions (which, it is to be hoped, may be isolated by application of this method of approach) might be held to consist of those patterns of motational combination from which all other emotional responses might be shown to be derived. Pleasantness might be defined as alliance of simple motations; and unpleasantness as conflict of simple motations.

I wish only to emphasize, in conclusion, that the value of such

schemata as those proposed must lie in their experimental verification or refutation, and not at all in their logical simplicity.

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THE EFFECTS OF DEFECTIVE HEARING UPON THE INDIVIDUAL AS A MEMBER OF THE SOCIAL ORDER *

By CORA M. HAINES

I. THE PSYCHOLOGICAL EFFECTS UPON THE PERSON WHICH AFFECT HIS ATTITUDE TOWARD OTHERS

THE hard-of-hearing adult presents some mental peculiarities. As a rule, he is deficient in auditory images, and those which he has are defective. For instance, one who, by means of a loud speaker, for the first time in years heard a concert, was not able to identify the sound of once familiar instruments, such as the violin. Because he cannot understand what people are saying, he falls into habits of inattention, and his mind has a tendency to become sluggish. Then, too, he is deprived of the mental stimulation that can come only through the interchange of ideas, and of the information gained from lectures; consequently, his mental life is less rich than it would otherwise be. More serious still, by not hearing the conversation of those about him *he is ignorant of many things that enter into the everyday life of his group,* and the things that seem so easy and matter-of-course to them are the ones in which he blunders most.

By way of compensation, the deafened man, freed from the necessity of listening to "words, words, words", may reflect upon deep, ennobling themes and so build up inner peace and strong character. Many, however, brood upon their affliction, and become "grouchy", morose, and bitter.

Isolation is one of the most terrible results of partial deafness. It is hard for one to keep from feeling that others live in a different world, and that he is only a spectator of the drama of life and not a participator. One who was losing her hearing said that it seemed as if a mist separated her from others, and both sights and sounds seemed to come from a distance. Never is this feeling stronger than when many people are around, especially if they are having a good time.

The almost childish curiosity of the deafened one is due to his attempts to break down this wall of separation. Often he feels

* This discussion is limited to the adult who, though unable to hear ordinary conversation, is not totally deaf.

that the conversation carried on in his presence relates to something in which he is interested or to himself personally.

The deafened person is self-centered. As he cannot make good social connections with those about, he is thrown in upon himself. That is why he is sensitive. Naturally, he thinks that the laugh or remark has reference to him. There is a tendency, especially during the period of adjustment to his handicap, toward suspicion, even of his friends, largely because he does not understand what they are saying and doing.

Depression is another marked characteristic, due mostly to the sense of isolation. He cannot throw off moods as readily as others do because he is deprived of many of the interests and of the contact with others that divert attention and give relief to inward tension. Music, with its soothing and elevating effects, is not for him. Depression may be overcome, but the battle must be fought over and over again. Many of the effects of defective hearing which are mentioned in this article are clearly contributing factors to depression.

Collingwood asserts that the deaf develop a "sixth sense", or intuition, which enables them to judge character more accurately or grasp a situation more quickly than hearing people.[1] That may well be questioned. The deafened, at any rate, are usually tactless and often mistake a situation, chiefly for the following reasons:

1. Facial expression and bodily gestures are often unintelligible without the words which accompany them, and sometimes they are positively misleading.

2. The deafened man does not catch the modulations of the voice and variations in tone that often tell more than the words do. It may be noted that the louder tones of the voice are harsh, so he often wrongly infers that the speaker is angry.

3. He grasps only a part of the situation. Interpreting what he sees by his general information and the fragments he hears, he frequently has a wrong idea of what goes on around him.

4. Of all sensory experiences, sound is the most closely associated with human life. Certainly there is a humanizing effect in the sound of a voice. That is why some deafened people deliberately talk to themselves. "The deaf mind is become lacking in imagination and emotion."[2] In a lesser degree, this is true of the mind of the deafened man. That is why he is often less gentle or

[1] H. W. Collingwood, *Adventures in Silence* (The Rural New Yorker, New York City), pp. 12, 34 and 109.

[2] E. W. Walker, *National Education Association, Proceedings and Addresses*, 1912, p. 1314. See also Collingwood, *Adventures in Silence*, pp. 29, 57 and 242.

sympathetic than others. Excluded from the source of much of human emotion, he is unable to appreciate the intensity of the passions, especially the finer ones, that grip others. He has lost touch with life.

The physical conditions that produce defective hearing often cause noises in the head, ranging from monotonous pulsations to loud, ringing noises, reports in the head, and even voices. Often the sounds are projected into space and the victim is unable to tell whether they come from within or without his person. These noises aggravate depression, the feeling of isolation, misanthropy, and ugliness of temper. Many nonsocial traits of such a person may be traced to this cause. The noises distract attention and so interfere with clearness of sensation and with concentration of thought.

Deafened people rarely pitch their voices rightly. Those suffering from catarrhal affections hear their own voices with exaggerated distinctness and those with defective auditory nerves cannot hear themselves, so the former murmur inaudibly and the latter scream. Some unfortunates alternate between the two without knowing that they have changed their pitch. The strain on the vocal organs is no index to the loudness of tone, so one who rarely hears any voice but his own does not know how loud he is talking. He also develops the harsher qualities of his own voice and faulty enunciation. He is noisy in his movements without knowing it.

Mishearing is a serious difficulty, especially in matters of business. Singularly, the slightly deaf often understand one to say the opposite of what he actually did say.

Self-reliance suffers, for dependence upon others is necessary in many things. One becomes inattentive, ceases to think for himself in the affairs of daily life, and regards himself as different from others.

Because they cannot mingle on equal terms with hearing people, the deafened have a feeling of inferiority. On the other hand, they resent the assumption of others that they are not equal to them. The truth is, the deafened are at least "different" in many respects, being somewhat queer in appearance and actions, and unable to cope with many little situations in everyday life, or to look out for themselves without the kindly offices of others.

II. THE EFFECTS WHICH THE HANDICAP ITSELF AND THE PERSON'S ATTITUDE HAVE UPON THE ATTITUDE OF OTHERS TOWARD HIM

"Tolerance" and "impatience" describe, in general, the atti-

tude of people toward the deafened. Pity and a sense of superiority are also marked.

Many avoid the deafened. That is but natural because of the embarrassment of attempts to converse, especially if others are present. Sometimes, in his longing to live in the world of other people, the deafened man makes himself a nuisance by insisting that everything be explained to him, and he is likely to make a confidential remark in a tone audible to all. He is a strain on everyone's nerves. His constant blundering is trying. It is little pleasure to converse with him, and those who do so from pity are usually self-conscious and stilted. The unfortunate defective is almost invariably left to take the lead, and he wonders what people talk about when they meet.

One cannot shout confidences to the deafened. That is one reason that he cannot get "close to" people. Some hold that he cannot form as intimate friendships as others do. When a third person is present, two carry on a conversation and leave the deafened out. Because it would be difficult to make him understand, sometimes he is not introduced to newcomers, and in other ways he is completely ignored.

On the whole, however, people are considerate of the deafened when they can be of service. Their pity is often a real disadvantage, for it makes a person more dependent, and leads to self-pity, with its deteriorating effect upon character.

Few people realize what impairment of hearing entails. They have a fairly good idea of what it is like not to see, for they can produce somewhat of the effect by being blindfolded, but even with their ears stopped they do hear. Then, too, in literature and public speech the deafened are usually a subject for mirth. The chief reason for people's lack of comprehension is that they think that all defective hearing involves is not hearing what goes on, and they remind one that much that is said is not worth while, and he ought to be glad he does not hear it. They do not know that these trivialities are essential to keeping in touch with life, and to understanding customs that enable one to know what to do or say in various circumstances. Hearing people lack material for imagining what the experience of the deafened is like.

Much misapprehension is due to the physical peculiarities of different forms of deafness. For instance, a person who hears in the rush and roar of machinery may be unable to understand when in a quiet place. One is unable to use a telephone, and another, whose hearing is much worse, can use it with ease. Those who use

instruments are frequently misjudged. Since they hear when one is speaking into the receiver, people do not realize that they cannot hear at a distance of a few feet, and urge attendance at public gatherings. Often these peculiarities are put down to sheer wilfulness.

The world is not against the deafened. They have no right to expect to be especially favored, but oftentimes life would be much easier if only their difficulties were understood.

III. THE EFFECTS UPON THE USEFULNESS OF A PERSON AS A MEMBER OF THE SOCIAL ORDER

The deafened person is not normal, and only the rare soul among them can function fully as a member of society. Too often, largely through his own fault, he is an undesirable member of it.

His limitations in the face-to-face groups, where he is in personal contact with others, have already been pointed out. He cannot contribute his part to the social hour, and often the best he can do is to avoid being a hindrance to the pleasure of others. In daily occupations he cannot assume some of the responsibilities that naturally belong to his position. Whether in the family group or in business, the deafened makes large draughts upon the forbearance of others.

Three courses are open to one who realizes his handicap:

1. He may ignore it, pretend to understand, and move among men as if nothing were the matter. That is not fair to others, who have a right to know whether they are understood, and it is not fair to the person himself, for it causes him to be misjudged. Besides, no one except the person himself is deceived very long.

2. He may accept his defect and withdraw within himself, avoid people, become a misanthrope, yield to depression, isolation, and other accompaniments of the disorder. That course renders one unfit to function in society in any useful way.

3. He may accept the condition, face the difficulties, endeavor to overcome them, and live as nearly as possible like a normal member of society.

One of the problems he must face is to what extent he shall do the things that other people do. The general principle that he should live as a normal person does so long as he does not lay a burden upon other people is difficult in practice. Just where does the dividing line come? It is not always easy to determine at what point buying his own ticket and doing business becomes an imposition upon the person with whom he is dealing.

Equally hard is it to know when he shall not attempt to do what others do. Attendance at lectures, church and public gatherings is often urged by one's friends who think he ought to go, as evidence of interest or loyalty. Whether to join in a conversation is another vexing question. If he does, he may be considered a nuisance; if he does not, he may be thought unfriendly.

The deafened must be alert when he is with others. Often his only clew as to what to do is the actions of others. Imitation sometimes leads to embarrassing or really serious situations, as when he seems to sanction something when in truth he does not know what it is all about.

Many lines of work are closed to the deafened, and in others his usefulness is curtailed. For instance, in dealing with children his inability to hear them deprives him of their little confidences and limits his helpfulness. In many other lines of work it is the same. Then, too, it is harder for the hard-of-hearing to perform any task that in any way involves contact with people than it is for others.

Yet, notwithstanding all hindrances, many deafened are to-day occupying responsible positions, and, while they may not climb as high as their ambition beckons, yet they are filling a worthy place in the social order.

STEALING AS A FORM OF AGGRESSIVE BEHAVIOR

By E. M. RIDDLE

Part II

THE AGGRESSIVENESS OF DIFFERENT FORMS OF STEALING

IN the first part of this study we considered the chronological ages and mental capacity of three groups of children, those who were known to steal, those who were known not to steal, and those about whom it was not definitely known whether they did or did not steal. It was found that the three groups examined were very near together in chronological age, but that the children who were known to steal were 16 months more advanced in mental age than those who did not steal, and 28 months more mature than those whose stealing was undetermined.

In this part is undertaken the analysis of all forms of stealing and their classification according to the apparent degree of aggressiveness required to put them into action.

Early Forms of Theft.

In analyzing the various forms of theft recorded in the social case histories, it was very interesting to see the "border zone" of stealing, the early manifestations or incipient forms of it. We have notations such as the following:

1. "The child has no sense of personal property. He uses others' property indiscriminately, and expects others to use his." The median mental age for children exhibiting this trait is 8 years and 11 months, while the median mental age for the whole group of children who were known not to steal was 8 years and 4 months, practically the same mental level.

2. "Child wants to go through people's pockets." Here is an early habit that is very dangerous, as it leads to the stimulation of the desire to steal, and allows the child to become accustomed to encroach upon another's private preserves. Healy [30] refers to a man who attributed his first delinquency to the fact that his father frequently would not give his mother enough money to feed

[30] William Healy, *Honesty*, 1915.

the family, and she taught him to go through his father's pockets for money after his father had gone to sleep.

3. "Child does not buy as much at store as he is told to, and says that the price has gone up." This is serious, especially as it is apt to be considered "cute" by the parents, and is laughed at, giving the child satisfaction and thus encouraging the formation of the habit.

4. "Child keeps change when sent to buy things at store." This early form of stealing probably requires less ingenuity than the one just preceding, but it is also apt to encourage the habit of stealing as it is likely to be successful.

5. "Child brings home false reports from school." In one case the child also brought home things he said he had found on the street, and which the parents suspected him of stealing. In another case he sold his new clothes and said he had lost them.

6. "Child takes money from his own bank without permission." Here it might be said is a fine point on personal property rights. But the child is not concerned with these. He knows perfectly well whether this is allowed or forbidden. In one case the child was also known to steal from a cousin's bank.

These are all examples of early stealing in the home, As will be pointed out later,[31] a large proportion of our cases steal in the home even when they show other forms of stealing also. We have only one instance of a transitional form of stealing outside the home. The child is known to "sneak in free to theatres". He also steals from the five-and-ten-cent-stores, but there is nothing known of his stealing in the home.

Classification of Stealing According to Aggressiveness.

Table 5 gives the main headings under which the various forms of theft have been grouped according to their aggressiveness. It also gives the number of cases under each heading. In this classification there are three points of view from which to estimate the degree of aggressiveness required for a particular form of stealing: First, the ease with which the child can distinguish between the property rights of himself and the person from whom he steals. He has to be able to see that his act is an aggression by himself toward another person. Second, the amount of initiative required to carry out the theft. He has to have aroused a strong enough desire to steal to force him into the undertaking of a difficult act. Third, the courage it takes to perform the act. The tendency

[31] See page 41, Part III, *Stealing in the Home.*

toward stealing has to be strong enough to enable him to face danger without losing courage.

TABLE 5

GIVING THE MAIN HEADINGS IN THE CLASSIFICATION OF THE VARIOUS FORMS OF STEALING ACCORDING TO THE DEGREE OF AGGRESSIVENESS REQUIRED TO CARRY THEM INTO ACTION

Form of stealing	Number in the group
1. Stealing from the home or from other members of the family	129
2. Stealing from building other than home, or persons not members of family	103
3. Stealing unlocked property left on the streets	56
4. Burglaries—breaking into buildings with intent to steal	24
5. Stealing locked property stationed upon streets	11
6. Pocket-picking	2
7. Highway robbery—forcible demands for money on streets	9
8. Forgery—passing of fictitious checks and taking entrusted funds	10
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Stealing From the Home or Other Members of the Family.

In making this classification on the basis of aggressiveness it has been assumed that stealing from the home required less self-assertion than any other form of theft. From an intellectual point of view it would seem to the child less definitely an act which would attack the rights of other people, that it would be easier, within the home, to feel that what belonged to one belonged to all, and therefore there would not be such a distinct question of one person taking from another. It would also take less courage to steal within the home as the surroundings are familiar and the people known and usually friendly. The child would not risk the law. And in the third place, the objects to be taken are placed before the child and it would require no initiative in seeking them out. And finally he would not have to face the person from whom the property was taken in personal, physical encounter.

Table 6 gives the subheadings included under thefts from the home; the median chronological ages, median mental ages, and median intelligence quotients as given for each heading in which there are enough cases to make this justifiable. When only two or three cases are found under a subheading, the data for all cases are given. The medians given at the bottom of the table are for the whole distribution of this class. The median is taken as the middle measure because under some headings there are too few cases upon which to use the statistical method for finding the mid-point on the scale. In order to draw final conclusions, a larger number of cases under certain of the groups will have to be studied.

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TABLE 6

STEALING FROM THE HOME

GIVING THE MEDIAN CHRONOLOGICAL AGES, MEDIAN MENTAL AGES, AND MEDIAN INTELLIGENCE QUOTIENTS FOR CHILDREN COMMITTING THE VARIOUS FORMS OF THEFT INCLUDED UNDER STEALING FROM THE HOME

Form of stealing	No. of Cases	Median C. A.	Median M. A.	Median I.Q.
No sense of personal property	9	13– 6	8– 4	62
Steals money from bank	1	10– 0	9– 0	90
Steals money from bank	1	13– 6	13– 8	101
Steals food from table and ice-box	14	11– 1	9– 3	84
Keeps change when sent to store	12	14– 0	10– 4	74
Steals money from parent's purse	57	13– 2	11– 2	85
Steals from brothers or sisters	10	13– 1	9–11	76
Steals from foster mother	9	10– 8	9– 4	88
Steals from other relatives	8	13–10	11– 5	82
Steals from father's store	1	8– 4	5–10	70
Steals from father's store	1	11– 8	7– 6	64
Steals from father's store	1	16– 6	15– 3	95
Steals from guests in the home	1	10– 1	9– 8	96
Steals from guests in the home	1	16– 9	16–10	105
Brings home false reports from school	1	11– 5	7–10	69
Brings home false reports from school	1	11– 8	7– 6	64
Brings home false reports from school	1	12– 7	9– 7	76
Total of all cases	129	13– 1	9– 9	75[32]

It is apparent that the children of this group are with few exceptions younger than the mean chronogical age of the total group of those who steal, and they are much less mature mentally.[33] It is also to be noted that this group includes the largest number of cases. The number of children taking from the parent's purse indicates the unwise practice of leaving money about when children have not been taught to withstand the temptation involved. Stealing from the ice-box is another early form of stealing, although it is not often recognized as such. This provides a very good opportunity for teaching property rights.[34]

Stealing From a Building Other Than the Child's Home.

Stealing from some building other than the child's home, or from a person other than one of his own relatives has been considered more aggressive because the property rights were more clearly defined and it is probable that he would feel more conscious of the distinction between himself and the other person. The objects to be stolen are not right at hand, but he must go out to

[32] These intelligence quotients have been read from tables, as it is only with a large number of cases that one could expect the median calculated from the actual cases to coincide with that read from tables.

[33] Data for the group who steal: C.A. 13–7; M.A. 10–4; I.Q. 78. See page 48, Part I.

[34] Of course the parent should first make sure that the child is perfectly well and that the sugar he needs is in his daily diet.

take them, and often has to resort to some ingenuity to find the opportunity of taking them without being detected. Furthermore, there is the possibility of more serious consequences in case he is caught, and there is probably greater fear among strange and unfamiliar surroundings.

Table 7 gives the subheadings under which these forms of stealing were grouped.

TABLE 7

STEALING FROM BUILDINGS OTHER THAN THE CHILD' HOME

GIVING THE MEDIAN CHRONOLOGICAL AGES, MEDIAN MENTAL AGES, AND MEDIAN INTELLIGENCE QUOTIENTS FOR THE DIFFERENT FORMS INCLUDED

Form of stealing	No. of Cases	Median C. A.	Median M. A.	Median I.Q.
Sneaks in free to theaters	1	12– 2	9–6	78
Steals from friends or neighbors of family	11	12–11	9–4	72
Steals from housekeeper or landlady	4	5– 2	10–5	69
Steals from other children	11	14– 2	10–3	72
Steals from employer or fellow employee	8	14–11	10–3	69
Steals from school teacher	6	12– 7	8–2	65
Steals from school lockers or desks	19	12– 2	8–6	70
Steals from stores of various kinds	37	13– 8	11–3	82
Steals from garages	1	6– 9	10–7	66
Steals from garages	1	14– 7	7–4	50
Steals from garages	1	17– 1	11–3	70
Petit larceny—no details given	1	13– 1	10–7	81
Petit larceny—no details given	1	5– 2	9–0	59
Petit larceny—no details given	1	21– 6	11–8	73
Total of all cases	103	13–11	10–3	74

The children in this group are slightly older than the mean of the total group who steal, but of about the same mental maturity. This is also a very large class in point of numbers. Here the most outstanding temptation seems to be stealing from stores. This can be explained by the fact that the children examined at the clinic as a rule come from poorer homes, and it is customary for the children to be sent to the stores to make purchases for the parent. It is not probable that a study of children coming from a more well-to-do class of society would show the same incidence.

Stealing Unlocked Property Left on the Street.

The distinction is made between this class and the preceding one because there is a greater element of danger and uncertainty. The objects left on the street are exposed to the view of the passersby, and the things stolen are large, and cannot be well hidden. This class is differentiated from Class No. 5 by the fact that in this class the object is not locked or fastened to any spot, and the child often says he borrowed the bicycle or automobile to

take a ride, and intended to return it. This class of thefts also requires more initiative than those nearer at hand.

Table 8 gives the subheadings under which these forms of stealing have been grouped.

TABLE 8

STEALING UNLOCKED PROPERTY LEFT ON THE STREETS

GIVING THE MEDIAN CHRONOLOGICAL AGES, MEDIAN MENTAL AGES, AND MEDIAN INTELLIGENCE QUOTIENTS FOR EACH GROUP

Form of stealing	No. of Cases	Median C. A.	Median M. A.	Median I.Q.
Stealing dogs	1	18–2	6– 2	39
Stealing paper wagon	1	13–6	9– 5	70
Stealing bicycles	21	14–0	11– 0	78
Stealing horse and wagon	5	11–5	7– 8	67
Stealing automobile accessories	8	15–7	10–10	70
Stealing automobiles	18	15–9	14– 1	89
Stealing motor boats	1	13–9	10– 2	74
Total of all cases	55	14–0	10– 2	72

Here the obvious temptations are bicycles at the median age of 14 years, and automobiles at that of 15 years and a half.

Burglaries: Breaking Into a Building With Intent to Steal.

This category was considered as indicating more aggressiveness because in order to steal, the child had to use force to break into a building, and ran greater risks of detection and punishment. It usually required some plan and perseverance in carrying it out. Table 9 gives the subheadings under which these forms of stealing are grouped.

TABLE 9

BURGLARIES

GIVING THE MEDIAN CHRONOLOGICAL AGES, MEDIAN MENTAL AGES, AND MEDIAN INTELLIGENCE QUOTIENTS FOR EACH FORM OF STEALING

Form of stealing	No. of Cases	Median C. A.	Median M. A.	Median I.Q.
Stealing by breaking into own house	1	15– 6	12–3	79
Stealing by breaking into neighbor's house	8	14– 4	10–3	72
Stealing by breaking into school	4	14– 3	12–0	84
Stealing by breaking into church	1	17– 9	15–3	95
Stealing by breaking into stores	9	16– 5	11–2	70
Burglary not specified	1	13–11	6–0	43
Total of all cases	24	14–11	11–7	78

Here both the median chronological age and median mental age of the children are far above the means of the total group of those who steal. It is interesting to note that one child broke into his own house with a crowd of other boys, and took food and jewelry

that he wanted. Evidently the neighbors' houses and stores are the most frequent burglaries attempted.

Stealing Locked Property Stationed on the Streets.

Table 10 presents a group of cases that seem hard to classify. They involve the robbing of receptacles that are left in plain view on the street. This entails a considerable risk, as in order to gain access to the desired object, the receptacle has to be broken open as in the case of burglaries. This type seems to be a more hazardous form of burglary.

TABLE 10

STEALING LOCKED PROPERTY STATIONED ON THE STREETS GIVING THE CHRONOLOGICAL AGES, MENTAL AGES, AND INTELLIGENCE QUOTIENTS OF THE VARIOUS FORMS

Form of stealing	No. of Cases	C. A.	M. A.	I.Q.
Stealing from news box	1	15– 2	8– 2	54
Stealing from mail box	1	8– 6	10– 7	124
Stealing from mail box	1	11– 5	7– 6	66
Stealing from mail box	1	12– 7	12– 9	101
Stealing from slot machines	1	15– 8	14– 3	91
Stealing from freight cars	1	12–11	7– 6	58
Stealing from freight cars	1	13– 6	8– 7	64
Stealing from freight cars	1	5– 9	7– 8	49
Stealing from wagons	1	16– 6	6– 6	40
Stealing from wagons	1	17–10	7– 6	47
Stealing from park station	1	16– 4	14–10	93
Total for all cases	11	15– 2	8– 2	54

We have so few examples of this form of stealing that we have given the complete data. The children as a rule are older than the mean of the whole group of children who steal, but the mental age is considerably lower. There is no particular form of stealing that predominates in this group.

Pocket-picking and Purse-snatching.

Here were two cases that did not seem to fit into any of the above classifications. It seems to be a transitional form correlative with highway robbery. It has the element of personal encounter with the individual from which the object is taken, but it uses shrewdness and manual dexterity instead of force, as is the case in highway robbery. Instead of darkness and isolation, the child uses the confusion of the crowd to protect him from discovery. Both are equally hazardous, although pocket-picking does not involve the use of fire-arms. From the few cases recorded, children must find this means of thieving more difficult, or they must be less frequently apprehended.

TABLE 11

POCKET-PICKING

GIVING THE CHRONOLOGICAL AGE, MENTAL AGE, AND INTELLIGENCE QUOTIENT FOR BOTH CASES

Form of stealing	No. of Cases	C. A.	M. A.	I.Q.
Pocket-picking	1	13–4	14–11	112
Pocket-picking	1	13–8	10–10	78

Table 11 gives the data on the two cases of pocket-picking and purse-snatching we have recorded. The children are both of the same age, but there is more than four years' difference in their mental ages, and consequently a large difference in their intelligence quotients. There are too few cases to venture any opinion.

Highway Robbery: Forcible Demand for Money On the Streets.

This form of stealing is decidedly aggressive in character. It involves a personal encounter with the individual whom the youth wishes to attack, and frequently results in the use of force to attain his ends. Occasionally toy pistols are used instead of real ones, showing an intent to use cunning and shrewdness rather than a desire to do bodily harm. When this is done, robbery shows its relationship to pocket-picking.

There were only nine cases of highway robbery. This may partly be due to the fact that many of the older boys committing this form of offense may have been taken to the adult courts, and not referred to the Clinic. But Williams, out of 295 cases sent to institutions for stealing, found only 8 cases of highway robbery. It is probable that this is quite a representative proportion of this form of stealing. Table 12 presents the data in full, as there are too few cases to group under any subheadings.

TABLE 12

HIGHWAY ROBBERY

GIVING THE CHRONOLOGICAL AGE, MENTAL AGE, AND INTELLIGENCE QUOTIENT FOR EACH CHILD

Form of stealing	No. of Cases	C. A.	M. A.	I.Q.
Holding up individuals	1	10– 5	8– 0	77
Holding up individuals	1	15– 6	12– 8	81
Holding up individuals	1	16– 0	16– 0	100
Holding up laundry wagon driver	1	16– 8	10–10	68
Holding up filling stations	1	14– 4	16–11	118
Holding up motor bus	1	15– 6	12– 8	81
Highway robbery not specified	1	16–11	10– 2	63
Highway robbery not specified	1	17–10	13– 2	82
Highway robbery not specified	1	17– 1	8– 0	50
Total for all cases	9	16– 0	12– 8	79

On the whole, the children are very much older, both chronologically and mentally than the mean for the total group of children who steal. There seems to be no specific circumstances that are more prevalent than others.

Forgery: Passing Fictitious Checks and Taking Entrusted Funds.

The passing of fictitious checks, forging endorsements, and taking entrusted funds for personal use, is evidently a more frequent form of stealing than one would expect from a group of children such as those coming to the Clinic. The poorer classes deal almost entirely in cash, and one would not expect checks to figure very largely in the children's thefts. It is not certain whether there is justification for classing this form of stealing as the most aggressive. In trying to pass forged checks, the youth is really defying organized society in broad daylight, and going unarmed into the enemy's territory, depending only on the possibility that he will be able to escape before he is discovered. In every case except one (that of the boy mentally 7 years and 4 months old) the youth was mature enough mentally to realize the implications of such an act. He did not have to use physical force, but he had to have the form of aggressiveness called "nerve".[35] He had to have self-assurance, initiative, and courage to face possible detection and severe penalties. In Table 13 the data has been presented in full, as there are so few cases given under any one heading.

TABLE 13

FORGERY

GIVING THE CHRONOLOGICAL AGES, MENTAL AGES, AND INTELLIGENCE QUOTIENTS FOR ALL CASES

Form of stealing	No. of Cases	C. A.	M. A.	I.Q.
Runs bills he will not pay	1	20–11	16– 4	102
Runs bills he will not pay	1	17–10	13– 2	82
Charges to parent's account when forbidden	1	17– 6	18– 6	116
Charges to parent's account when forbidden	1	15–10	19– 1	120
Writes checks on parent's bank account	1	20–11	16– 4	102
Writes checks on parent's bank account	1	12– 8	12– 9	101
Cashes checks given to be deposited	1	20– 0	15–11	99
Passes worthless checks and keeps change	1	17– 1	13– 1	82
Passes worthless checks and keeps change	1	19– 6	13– 8	85
Forges checks not specified	1	9– 9	7– 4	76
Total for all cases	10	17– 8	14–10	92

The first item was included here because these thefts were

[35] See E. M. Riddle, Aggressive Behavior in a Small Social Group, Archives of Psychol., No. 78, 1925, pages 7, 166 and 177, for a discussion of the "nerve" required in a poker game.

intentional and were associated with other forms of forgery. These are all fairly complicated ways of getting money by illegitimate means. They take a considerable amount of intellectual ingenuity and perseverance, and they require the courage to face a difficult social situation.

Summary

As a summary of this data, we have presented the rank order of all the main categories, first according to the degree of their chronological ages, then according to that of their mental ages, and then according to their intelligence quotients. In Table 14 we present first the rank order for chronological age.

TABLE 14

Forms of Stealing Ranked According to Median Chronological Age

Form of stealing	No. of Cases	Rank in Median C. A.
Stealing from the home	129	13– 1
Pocket-picking	2	13– 6
Stealing from buildings other than home	103	13–11
Stealing unlocked property left on the street	55	14– 0
Burglaries	24	14–11
Stealing locked property stationed on street	11	15– 2
Highway robberies	9	16– 0
Forgery	10	17– 8
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The interesting fact about this rank is that it agrees almost completely with our order of aggressiveness. Pocket-picking is the only class out of place, and it contains so few cases that it can be disregarded. This is just what would probably occur if we could measure aggressiveness. It would increase in degree up to a certain point of maturity, probably in late adolescence. Another significant point is that the frequency decreases as the assumed aggressiveness increases. This would be expected if this trait were one-half of a normal curve of distribution. It is possible that aggressiveness does not form a complete distribution, and that the other end of the curve is called by the name of some other character trait.[36]

Table 15 gives the main categories ranked according to the degree of mental maturity.

This rank order also seems to follow a definite scale. The forms of stealing appear to be arranged according to the degree of planning necessary to carry out the project. We have a series of acts

[36] Possibly submissiveness.

TABLE 15

FORMS OF STEALING RANKED ACCORDING TO THE MEDIAN MENTAL AGE

Form of stealing	No. of Cases	Rank in Median M. A.
Stealing locked property stationed on streets	11	8– 2
Stealing from the home	129	9– 9
Stealing unlocked property left on streets	55	10– 2
Stealing from building other than home	103	10– 3
Burglaries	24	11– 7
Highway robbery	9	12– 8
Pocket-picking	2	12–11
Forgery	10	14–10
	343	

varying in planfulness from the simple one of taking what lies right at hand in the home or borrowing a boy's bicycle to take a ride, up to a prepared-for act such as holding up a filling station or carrying out a complex concept such as cashing worthless checks. The only item that is misplaced according to our idea of the need for previous preparation and forethought is the one termed "stealing locked property stationed on streets". It would seem that this should come between "stealing from buildings other than the home" and "burglaries". It would require careful study of a larger number of cases of this type to determine this point.

Table 16 presents the rank order according to intelligence quotients. In view of the fact that the data are limited in the number of cases represented in several of the main categories, and on that account the measure of central tendency used to represent these distributions is somewhat uncertain, Table 16 has been presented, giving the median I.Q.'s calculated according to four possible methods: First, the quotient corresponding to the ratio between the mid-measure in chronological age and the mid-measure in mental age, has been found. Second, in the second column the median was found by locating the middle score or measure of the total series of quotients for that class. Third, in column 3 the median quotient, when defined as the mid-point on the scale, is given. This was obtained by getting the ratio of the mid-point in chronological age to the mid-point in mental age by means of tables. And fourth, Column 4 gives the median as defined as the mid-point of a series of measures, and was calculated from the actual distribution of intelligence quotients for each offense. It is felt that Column 1 best represents the data by using the middle measure and using the intelligence quotient secured by finding the ratio between the middle chronological age and the middle mental age. However, there are several facts that remain constant, no matter which method is used. It will be observed that the distributions of intelligence quotients are very much the same. There is in

TABLE 16

FORMS OF STEALING RANKED ACCORDING TO MEDIAN INTELLIGENCE QUOTIENTS

Number of form	Form of Stealing	Number of cases	Median as the middle measure. I.Q. obtained by tables			Median as the middle measure. Actual middle I.Q. used			Median as the midpoint on scale I.Q. obtained by tables			Median as midpoint on scale. Actual midpoint of I.Q. used		
			Difference in Points	I.Q.	Rank	Difference in Points	I.Q.	Rank	Difference in Points	I.Q.	Rank	Difference in Points	I.Q.	Rank
5	Stealing locked property on streets	11		54	1		64	1		52	1		63	1
			18 pts.			10 pts.			17 pts.			16 pts.		
3	Stealing unlocked property left on street	55		72	2		74	2		77	4.5		79	2
2	Stealing from building other than home	103		74	3		77	3		77	4.5		84	6
1	Stealing from home	129	7 pts.	75	4	9 pts.	83	6	9 pts.	78	6	5 pts.	83	5
4	Burglary	24		78	5		81	4.5		73	3		80	3
7	Highway robbery	9		79	6		81	4.5		69	2		82	4
			13 pts.			17 pts.			10 pts.			17 pts.		
8	Forgery	10		92	7		100	7		88	7		100	7
6	Pocket-picking	2		96	8									

each column one I.Q. that is very low. In every case it is the same one; that of "stealing locked property stationed on the streets". Then comes a group of five different forms of stealing, clustering very close together, only varying among themselves from five to nine points in I.Q. These five forms (3, 2, 1, 4, and 7) remain the same although they vary in relationship to each other. There is a considerable interval (10–18 points of I.Q.) between the lowest I.Q. of all, and the lowest I.Q. of this group. Furthermore, there is also a relatively large interval between the highest I.Q. in this group and the next and the last I.Q. in the series. (The data on pocket-picking has been omitted because only two cases are represented.) The highest intelligence quotient in the series is the same in all cases; namely, forgery. And this again is separated from the central group by from 10–17 points. This table is hard to interpret. It appears to indicate that the very unintelligent children, really the feeble-minded ones, do such things as break into slot machines and freight cars, that there is very little difference between the intelligence of children who steal from the home or from stores or who steal bicycles and automobiles left on the streets, and those committing burglary and highway robbery. The medians for all of these latter cases come within the "border zone" of mental inadequacy. Forgery as a form of theft seems to require a higher degree of intelligence, and those committing it approach the mental capacity of the normal individual.

Summary of Results

In this section the following points have been brought out:

1. When different forms of stealing are arranged according to the aggressiveness involved in their execution, the median chronological age is seen to be higher for each successive group, from that of 13 years and 1 month for stealing in the home, to 17 years and 8 months for forgery.

2. When the various types of stealing are arranged according to the degree of mental maturity, they follow a serial order according to the amount of planning and forethought required to carry each form of theft into effect.

3. When the several forms of theft are arranged according to the degree of their intelligence quotients, a well-defined grouping is brought out. Children who steal from the home and stores, take bicycles and automobiles on the streets, burglarize, and commit highway robbery, range about 72 or 79 I.Q. Those who rob freight cars and slot machnies are much lower in intelligence, about 50–60 I.Q., while children who use forgery as their means of theft are of normal intelligence.

TWO SUGGESTIVE EXPERIMENTAL APPROACHES TO SOCIAL PSYCHOLOGY

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HOWEVER valuable one may consider McDougall's instinct theory or Dunlap's theory of desire as a basis for social psychology, either is admittedly merely a basis. The *facts* of social psychology are to be found in various social situations. For some time to come most of these facts will be brought to light by social workers, employers, teachers and others on the firing-line of interpersonal reactions. It is too soon for social psychology to hope for inclusive synthetic interpretations; our present task is rather to record in some sort of systematic fashion the psychological facts with which social life is so rich. Two efforts to gather such facts in reliable fashion follow.

I. The vogue of "audience voting" in debating offers opportunity for testing one of the assertions of commonsense social psychology, that no one is ever convinced by argument. An evident exaggeration, but how much of one? At a recent Harvard-Wesleyan debate the audience was asked not only to vote on the merits of the debating but on the merits of the question; or rather they were asked to indicate their personal opinion as to the merits of the question before and after the debate. Under each heading provision was made for those undecided.

The number of auditors was so small that little significance can be attached to the results but it is interesting to note the possibilities which such a ballot brings to light. Ten persons began by favoring the affirmative side, of whom nine ended in the same opinion. Ten also began by favoring the negative; one switched to the affirmative while two were unsettled by the debate. Twenty-six were undecided when the debate began; 6 went over to the negative, 12 to the affirmative, 8 remained on the fence. Fifty-nine per cent of those present and voting (nearly everyone did vote) registered a change of some sort in their opinions, though less than 3 per cent made a change from one side to the other.

In securing adherents for their case, the affirmative were evidently somewhat superior to the negative. But in this matter the voters displayed no hidebound consistency for many who indicated

that they had been convinced by the affirmative case, yet thought that the negative had done the best debating. One is reminded of the juryman's remark that he did not think so much of the celebrated pleader of the defense counsel but he had to vote for him because he had the best case. At any rate, by a vote of 25 to 21 the audience declared the negative to have done the best debating; the three official judges concurred.

One may remark in passing that the impartiality of the audience in judging debates is apparently high; at Harvard there is said to be a leaning-over backward so that the Harvard team can never win the audience decision. Here is another place where facts can be had. One would regard this impartiality with higher favor if it seemed to extend to more important activities like athletics; as it is, it would seem to indicate indifference to the intellectual, or at least forensic, distinction of one's college.

II. In the city schools of Chicago the children were asked in a school essay to describe a playground as they would furnish and equip it if a fairy provided them with unlimited funds for that purpose. One of the insistent notes in the replies was for a place of quiet in which to rest—and, no doubt, to daydream. Exact statistics are unfortunately no longer to be made. But one is forced to inquire whether the revealing of this attitude is not worth much theorizing concerning child play?

Under the direction of V. K. Brown, Superintendent of Playgrounds and Sports in the South Parks System, and of C. H. English, Director of Recreation, Chicago Public Schools, this inquiry is being carried somewhat further. A serious effort is being made to discover the preferences of the playground patrons for various kinds of activities. The play preferences of children would seem to be as important as their color preferences so ardently investigated some years ago. The matter is one of some intricacy since the play preferences depend upon so many factors, but with patience these are being isolated. The basic method used is an annual ballot at the time of the regular state and national elections. Later it is hoped to secure data on the effect of the season at which the election is held. Enough data have so far been secured to indicate that the method really works, that reliable preferences are expressed, and a genuine picture of the play needs of children can be thus secured. The immediate administrative value of the study for playground workers is evident; but we should not overlook the fact that such results as these furnish the raw material out of which to construct social psychology.

THE GOOD JUDGE OF PERSONALITY

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WHETHER personality can be measured with sufficient accuracy to warrant practical conclusions is to-day an unsettled point. Indeed, it is probable that a categorical statement about the measurement of personality as a whole is impossible and that the problem must be settled in a piecemeal manner by considering either groups of affiliated traits or even separate traits themselves. An intensive study of a sufficient number of traits by any standard method should be capable of settling the disputed point. But no matter what opinion any one has formed upon this question, he will probably admit that some individuals are better, or at least not as poor, judges as others.

Obviously, if a number of personality ratings or rankings are available and a sufficient number of traits have been used to give averages a sufficient reliability, differential studies become possible. The average of a number of rankings is considered to be a more probable record of the truth than any of the single measurements which determine it. If the average be accepted as a working hypothesis, we can determine the accuracy of the individual raters by either of two methods, that of deviations, and that of correlations. Both methods have been used and certain important tendencies have been pointed out.

In our experiments, we have been interested more in determining the personality traits of the ones who are the better judges of personality than in finding out their adventitious circumstances.

The subjects used in the experiment were volunteers from the elementary course in Psychology. That they should have lived together in the same house or have been engaged in the same line of campus activities for at least a year was the condition imposed. Ten subjects constituted one team. The present discussion is based upon the results of 8 * teams, all composed of girls. Each team appeared once as a group. The list of traits was read to them, the meaning of the trait terms and the method of ranking explained. It was made clear that they should individually and

* In considering the self ratings, records of 9 teams were used.

without conferring with anyone arrange all 10 of the members of the team, including the self, in order of merit in the traits given in the list.

The list of traits was made up of 63 subjective and 14 physical characteristics. The subjective traits were taken from the well-known list of Heymans and Wiersma. In a previous experiment all the traits in this list had been used, but it soon appeared that some of them were either too baffling or too embarrassing to yield usable results. The original list of 104 thus shrunk to 63. The subjects graded on 21 traits each week; the fourth week they began to repeat the rankings. The result is of course two complete sets of rankings of 10 persons by ten persons for each trait.

The sum of the ranks for each individual in each trait was obtained separately for the first and for the second ranking and from these averages a new order of merit was determined. Finally, the sums of the 20 ranks obtained in first and second gradings was obtained, and a series of ranks established. This serves as our *hypothetical* truth. If the correlation between the first and second subtotals for each team in each trait did not equal or exceed plus .70, the data were not considered in the subsequent tabulations.

Using the ultimate series of ranks as a standard, we computed the deviations made by each individual grader. It must not be thought that the result is an average deviation, for that would demand that the average of the ranks should be used as the standard. We re-ranked in terms of the size of the averages, assigning thus a "true" position and subtracted from this the position assigned. The deviations thus obtained include both errors[1] of self estimation and also errors in estimating others. We have consequently, a two-fold problem. Errors of self estimation will be considered first. Table I shows the distribution of 10,567 self estimates. The average is plus 0.359 places, showing a general tendency towards overestimation. The probable error is 0.0175, showing the results to have a high degree of reliability. When magnitude of errors is divorced from sign, self displacements will average 2.20 places. The table shows that 18 per cent place themselves where they belong. A rectangular distribution would place 5.3 per cent in each of the 19 divisions on the scale, hence the 18 per cent is three times better than chance. Forty-six per cent place

[1] We are quite well aware that these errors can be logically called errors only when the standard represents the truth. Since an average obtained by sampling is an approximate truth, these errors must be recognized as approximate errors. Average deviations are purposely omitted, for since they are so universally known as an instrument for testing the reliability of an average, their use would here obscure the issue.

themselves between +1 and —1, 63 per cent between +2 and —2, and 71 per cent between +2.5 and —2.5 places.

TABLE I

Displacement	Frequency
+9	14
+8	41
+7	67
+6	141
+5	212
+4	397
+3	669
+2	999
+1	1309
0	1853
—1	1406
—2	1177
—3	845
—4	614
—5	433
—6	207
—7	107
—8	63
—9	13
	10567*
Av.	—0.359
P. E.	0.0175

Possibly the best starting point for discussion is to be found in the peculiarities brought out in connection with the above table. We found that about 18 per cent rank themselves correctly, 36 per cent underestimate themselves, and 46 per cent overestimate themselves. In other words, for every 100 who underestimate, 126 will overestimate themselves. Is the tendency towards overestimation or the reverse a symptom of a particular sort of personality? The members of each team were ranked in order of their self overestimation and these ranks correlated with the ranks for each of the traits in turn. For convenience of presentation, the traits are divided into 5 rather arbitrary groups,—mental, emotional, volitional, social, and self qualities. The results for the mental traits are shown in Table II.

TABLE II

Trait	Correlation
Quick mentally	—.80
Bright mentally	—.83
Deep mentally	—.65
Common sense	—.47
Observation	—.87
Reads much	—.58
Humor	—.90

* The reason this number is not 12600 is two-fold. In the first place, about 12 per cent of the rankings could not be used because of the plus .70 criterion mentioned above. In the second place, some members of each taam, for various reasons, gave incomplete rankings.

This table shows that the one given to self overestimation is, in a word, stupid. This finding agrees well with that of the Allports. It furthermore, since observation is poor, indicates that the individual is introverted in Jung's sense of the term.

TABLE III

Trait	Correlation
Emotional	—.04
Touchy	.32
Quick tempered	.18
Tendency to worry	.20
Moody	.15
Sympathetic	—.73
Courage	—.70
Joyful disposition	—.78
Generous	—.77
Calm in emergencies	—.48

Here, Table III is some evidence to show a tendency towards a gloomy, narrow outlook on life. The emotional reactions have an inner rather than an outward reference.

TABLE IV

Trait	Correlation
Industry	—.35
Give up easily	.35
Work for present	—.01
Resolute	—.35
Easily persuaded	—.18
Trustworthy	—.62
Moral courage	—.68
Strong will	—.40

The correlations with volitional qualities are given in Table IV. They show a tendency towards weakness of will and an inclination to shirk responsibility.

When we turn to a consideration of the social qualities given in Table V, we find a long series of negative correlations. The positive self-consciousness may be considered either as a cause or an effect of the other traits. The lack of knowledge of others, the lack of interest in them, the general indifference or even avoidance

TABLE V

Interest in persons	—.86
Likes companionship	—.38
Knowledge of human nature	—.98
Tries to please others	—.71
Independence	—.22
Sympathy	—.73
Demonstrative	—.63
Tact	—.77
Politeness	—.55
Talkative	—.27
Self-conscious	.53
Popularity	—.73

of others as human beings are the most outstanding features. He who overestimates seems to be with rather than of the social group. Again, we can infer an almost complete self-centeredness.

The correlations with the self qualities are given in Table VI. These in a way simply reaffirm what has been said previously. The one who exaggerates his possession of qualities tends to be obstinate, though weak of will. He is also somewhat deficient in self-confidence. Of special interest are the correlations with trustworthiness and conscientiousness. These two terms describe qualities that are much alike, but that differ in one fundamental respect. Trustworthiness includes a social element lacking in conscientiousness, so the correlations suggest anew the rather antisocial personality of the one who overestimates himself.

TABLE VI

Trait	Correlation
Truthful	—.43
Trustworthy	—.62
Conscientious	—.40
Courage	—.70
Prudent	—.18
Resolute	—.35
Obstinate	.40
Broadminded	—.91
Self-confidence	—.32
Absent minded	—.04

In general, then, the picture which we get of the one who overestimates himself is of a stupid, antisocial, weak willed, self-centered person who suffers at the same time from self-consciousness and lack of self-confidence. From the standpoint of rationality, this is a highly consistent picture, the separate parts dovetailing nicely.

No separate curve for the general tendencies of estimates of others has been made. It seemed unnecessary since the method of rank differences are used. For, with such a closed system of numbers, overestimates of self must be compensated for by underestimates of others. This is an inevitable outcome of the method which may be a real fact or an illusion. There is, however, some evidence of the existence of two somewhat different types who are able to judge others with relative accuracy. These conform to the time-honored and rational divisions,—the inferential type, on the one hand, who observes and then rationalizes on his observations; and the emotional type, on the other, who is emotionalized by his observations, and who, by a method of einfühling or pseudo-empathy, is presented with a series of passive estimates. The first type knows and knows how it knows; the second type knows,

but knows not how it knows. The first type is somewhat more inclusive but less accurate; the second type is less inclusive but more accurate. There is slight evidence, somewhat dubious because of the scarcity of cases, of an intermediate type which is emotionalized as is the second type, and then tries to rationalize on its feelings. But the whole series of distinctions are relative rather than absolute. They are, however, of sufficient importance to deserve mention.

If now we pay attention to amount of error instead of direction of error for both self estimates and estimates of others, and deal with the averages for each individual instead of his separate scores, we have thrown our data into a form which will enable us to determine relative degrees of accuracy in ratings, and which will also permit us to work correlations with rankings in traits. The result will again be two pictures,—one of the individual who knows himself accurately, the second of the person who is a good judge of others. The curves of distribution are given in Table VII.

TABLE VII

Error	Self	Others
1.1	1	
1.2	0	
1.3	0	
1.4	1	
1.5	4	
1.6	3	8
1.7	6	12
1.8	4	17
1.9	10	12
2.0	7	7
2.1	9	9
2.2	4	6
2.3	13	4
2.4	8	3
2.5	4	1
2.6	3	1
2.7	4	
2.8	2	
2.9	2	
3.0	0	
3.1	1	
3.2	1	
3.3	1	
Average	2.20	1.93

The following general conclusions emerge from this phase of the experiment. The average error of self estimates is 2.20 places, of the estimates of others is 1.93 places. Second, the ability to estimate one's self is moderately constant, the correlation between

first and second rankings being represented by the figure plus .70.[2] It is highly probable that memory plays a rôle of no inconsiderable importance here. The ability to estimate others is less constant, being represented by a correlation coefficient of plus .55. Third, the two capacities, the ranking of self and the ranking of others, appear to be almost but not quite independent variables, for the correlation is expressed by the coefficient plus .25.

For convenience of presentation, we shall follow the same procedure as previously in giving the correlations between these two abilities and the specific traits. We shall not expect to get such clearcut evidence as in the case of overestimation, for when the curve is folded back upon itself at the position of the average and we combine the results of both classes, the outstanding differences become more shadowy. The results are given in parallel columns to facilitate making differential judgments. For it frequently happens that a consideration of either column alone would reveal nothing, yet when the algebraic differences between corresponding coefficients are obtained, the differences may become truly significant. Table VIII gives the correlations between ability to rate and the mental qualities.

TABLE VIII. ABILITY TO RATE

	Others	Self
Quick mentally	.15	.57
Deep mentally	—.08	.15
Bright mentally	.21	.66
Common sense	—.08	.13
Observation	.21	.50
Sense of humor	.03	.37
Reads much	.11	.21

Both types show positive correlations with the mental traits, but the excellent self raters give higher values than do the successful raters of others. The most outstanding feature of both groups is their mental quickness and agility. The adequate self rater possesses these qualities to a higher degree. He also surpasses the judge of others in profundity, in common sense and in powers of observation. We may summarize this section by the assertion that the accurate judge of self appears to be somewhat more intelligent and to be more observing than the good judge of others.

Table IX gives the correlations between ability to rate and emotional qualities.

[2] I know of no orthodox formula for determining the coefficient with these kinds of data. Consequently, a scatter diagram was made, and the coefficient computed by the method of unlike signs.

TABLE IX. ABILITY TO RATE

Quality	Others	Self
Emotional	.18	.27
Touchy	.40	.09
Tendency to worry	.02	—.24
Sympathetic	.03	.50
Courage	—.37	.24
Joyful	—.11	.26
Moody	.26	.17
Generous	.11	.30
Quick temper	.29	.13
Calm in emergencies	—.03	.19

From this table, we may infer that both groups are mildly to moderately emotional. However, at this point the similarity ceases and differences begin to appear. The good judge of others tends to be touchy, quick of temper, glum and moody, and lacking in courage. The good self judge, on the other hand, tends to be happier, less gloomy, less irritable, less liable to lose his head, more sympathetic, more generous and more courageous than the good judge of others.

TABLE X. ABILITY TO RATE

Quality	Others	Self
Industry	—.13	.09
Give up easily	.15	—.01
Work for the present	.42	.15
Resolute	—.23	—.19
Easily persuaded	.03	.14
Trustworthy	—.02	.17
Moral courage	.19	.17
Strong will	.10	.10

Table X gives the correlations between ability to estimate and the volitional qualities. Little emerges from this table. If we may argue from our diagnosis of Webb's[3] table of correlations that strength of will is an integration of two elements, an anticipatory idea and perseverance, then both classes seem to be slightly deficient in the second element, compensating for it possibly by their mentality. This conclusion is borne out by a study of the separate qualities in this division. Other differences are the greater trustworthiness and the greater moral courage of the good self judges.

Table XI gives the correlations between ability to estimate and the social qualities.

The outstanding feature of this part of the discussion is the greater social interest and adaptability of the good self judge. In fact, this appears to be the most significant thing about him.

[3] Webb, Character and Intelligence. Brit. Journal of Psychol. Monog. Supp. 1915.

TABLE XI. ABILITY TO RATE

Quality	Others	Self
Interest in persons	—.10	.44
Likes companionship	.10	.43
Tries to please others	—.05	.29
Independence	.34	.23
Sympathetic	.03	.50
Demonstrative	.19	.50
Tact	.15	.57
Politeness	—.02	.39
Talkative	.38	.31
Self-conscious	—.03	—.32
Popularity	.18	.36

He is interested in other persons, likes to be with them, puts himself out to be agreeable to them, is sympathetic, demonstrative, tactful, polite and popular. The good judge of others, on the contrary, tends to be independent, takes relatively little interest in persons, appearing to be gregarious rather than social. In general, he is either negative or but slightly positive in his social tendencies. To summarize: the one who can estimate himself well tends to be moderately social; the good judge of others tends to be either antisocial or indifferent.

TABLE XII. ABILITY TO RATE

Traits	Others	Self
Truthful	.21	.13
Trustworthy	—.02	.17
Conscientious	.11	—.03
Courage	—.37	.24
Prudent	—.02	.17
Resolute	—.23	—.19
Obstinate	.10	—.14
Broadminded	—.02	.56
Self confidence	.00	.31
Absent minded	—.16	.17

Table XII gives the correlations between ability to rate and the self qualities. Once again the advantage is found to lie with the good judge of self. The greatest difference, 61 points in the case of courage, is to the detriment of the good judge of others. The self judge is likewise broad minded, and moderately self-confident. Other differences are slight.

The analysis of our data has revealed the existence of certain differences of a moderate magnitude and of a very consistent sort in the personalities of those who judge others well as compared with those who are good self judges. The self raters are more intelligent, possess to a higher degree the more desirable emotional attributes and are much more socially minded. Possibly the key notes of the difference are to be found in the broad minded sym-

pathy and lack of self-consciousness of the good self raters. This would lead not only to facile intercourse with others but also to an intercourse which would tend to bring out spontaneous reactions from others. Sympathy and intelligence combined might lead to an understanding of others. Because of their liking for their kind they are thrown both more extensively and intensively into their company and consequently have a better chance for understanding them. The outstanding difference is the social inclination of those who rate themselves well, and the antisocial or socially indifferent tendencies of those who are successful raters of others.

If we may venture to try to explain this apparent paradox, our line of thought would be as follows. The good judge of others tends towards the egotistic. He at any rate is cold blooded towards others and not interested in them. His thoughts and emotions consequently center about himself. He is the important thing in the universe for himself, and others are regarded by him as tools for his own satisfaction and gratification. He finds one suitable for one purpose, another for another, and develops a shrewd ability to measure others, not as human beings, but as tools.

The good judge of himself, on the other hand, tends to regard society as the end, and himself as the means, or to phrase it differently, society as the constant, himself as the variable. Society's reaction to him thus becomes the important thing. This enables him to discriminate between the various kinds of demands which are made upon him and he finds that he is considered adequate in certain respects, moderately adequate in others, but not at all satisfactory in still others. He develops consequently a self-awareness and self-knowledge in terms of such social reflections.

The apparent paradox, that the one who is most interested in others understands himself best, and the one who is most interested in himself best understands others, thus becomes rational.

THE PROVINCE AND SCOPE OF MENTAL HYGIENE

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I. THE NEED FOR FORMULATION OF GENERAL PRINCIPLES OF MENTAL HYGIENE

FOR more than fifteen years the term "mental hygiene" has been in use. Since its origin, when the term was coined by Dr. Adolph Meyer to apply principally in the study of morbid factors, mental hygiene has come to have a wider significance in industry, education, and other social and economic fields.

By long years of patient experimentation and research, various sciences have established certain laws and principles which to these sciences are working tools. But such is not the case with the mental hygiene movement. Partly because of the rapidity with which the movement has grown, partly because of its infancy, and resulting indirectly from both of these, the lack of concentrated research in mental hygiene, the movement has become more of an art than a science. Burnham (1) recognizes this fact, citing that at the present time it is impossible to formulate any fundamental principles of mental hygiene because of an insufficient nucleus of scientific data and that whatever general principles are used are tentative.

But this does not mean that the psychologists, psychiatrists and others who are interested in the movement have been idle. Not only the literature itself, but also the general recognition given in various fields witnesses that effort is being made to define the problem and scope of mental hygiene. Abbot (2) in a very excellent article attempts to answer the question—What is Mental Hygiene? He points out that it is "something positive and constructive, not merely, or even chiefly, preventive, and without undue emphasis on the morbid." Other writers less comprehensive than Abbot have adopted the general assumption that mental hygiene is concerned with the promotion and maintenance of mental health, no matter in what sphere the principles are applied. While such an assumption may suffice for a purview of the whole field, yet it is questionable as to whether or not such a generaliza-

tion can be made the basis for scientific procedure or establishment of a method.

Undoubtedly, when the various aspects of the subject are considered, some spheres in which mental hygiene principles are applied at present loom as more important than others. As indicated by Abbot and pointed out by Williams (3) mental hygiene has concerned itself very largely with the problem of the care and treatment of those mentally diseased and with the social and economic problems that develop about them. But now it is vastly more concerned with the mental health of persons who are not mentally diseased, the normal individual. What line is to be drawn between these two factors—the morbid and the normal—in the application of mental hygiene principles? What is the most fertile soil in which the mental hygiene movement can function? What is the relative importance of various groups of people and agencies as they are affected by or connected with mental hygiene? It is with the hope of making a contribution to the answer of some of these queries that the present study and others have been undertaken.

II. THE PROBLEM OF THE STUDY

Assuming the extremes, abnormal and normal, as being within the province of mental hygiene, effort was made (a) to determine whether or not mental hygiene should apply exclusively to either of these two extremes; or (b) whether or not both extremes should be stressed, and if so, in what measure. That is, do they vary in importance or are they equal in importance?

Further, some effort was made to ascertain the amount of emphasis which various institutions or organizations and groups of people should receive in their relation to the principles of mental hygiene. Next, collated opinion was asked on a definition of mental hygiene. With these two latter problems, later papers will deal.

III. MATERIALS OF THE STUDY [1]

The following questionnaire was devised as a means of solving the problem of the present study:

1. Should the term mental health or "mental hygiene" be concerned with abnormal or morbid factors *alone*—feebleminded-ness, mental disorder, delinquency, criminality, etc.—their recognition, care, and prevention? YES NO

[1] The writer is indebted to Abbot (article previously cited) for the groups of institutions or organizations used in Question 5, and the groups of persons used in Question 6. They are used with only slight modification.

2. Should the biological phase *alone* of "mental hygiene" be stressed, viz., that the chief function of man is environmental adjustment and good adjustment is efficient living?[2]

   In this sense mental hygiene applies almost exclusively to so-called normal individuals—normal in this case meaning any individuals who are not classified as feebleminded, insane, psychopathic, delinquent, criminal, etc., or otherwise in need of supervision. YES NO

3. Should both of the aspects of mental hygiene cited in Questions 1 and 2 be considered in the field of mental hygiene?

   YES NO

4. In case both phases cited in Questions 1 and 2 should be included under mental hygiene, should one phase be stressed more or should they be considered as equal in importance?

   (a) Stress on morbid factors.
   (b) Stress on biological factors.
   (c) Of equal importance.

5. The following are *nine institutions* or *organizations* to which mental hygiene needs are applicable. Please list those in order of importance, using 1 to indicate most important, 2 next in importance, and so on to 9, the least important.

   (a) Home, to secure good attitude, examples, atmosphere, etc., for both adults and children.
   (b) School, to secure good health conditions, understanding by teachers of pupils' personality needs, studies adapted to each pupil's needs and abilities, etc.
   (c) Industry, to secure good health conditions, harmonious relation between management and employees and among employees, work and workers fitted to each other, understanding for and consideration of the misfit.
   (d) Courts, juvenile and adult, to secure better understanding by all court officers of the mental, personal, social and other environmental factors in delinquency and crime. Better consideration of individual needs and of the probable effects of punitive measures.
   (e) Penal and reformatory institutions, to secure better knowledge by all officials of the individual needs of inmates, better attitude toward them, better classification, employment, and segregation.

[2] The use of the term "biological" has been questioned by several respondents. To an extent the criticism is warranted, but since the connotation of the term has been explained in the questionnaire, the writer does not believe that results are vitiated because of a misunderstanding (or perhaps technical misuse) of the term.

(f) Hospitals, general and special, almshouses, orphanages, etc., to secure a favorable atmosphere, promote self-respect and self-confidence in the inmates, to develop the best judgments of which they are capable, etc.

(g) Church, to secure elimination from its forms and teachings of the mentally unhygienic concepts of original sin and passages which relate to revenge, hate, intolerance, etc.

(h) Peoples and nations, to secure lessening of race conceit, prejudices, antagonisms, jealousies, injustices, and desires for revenge, in order that they may understand each other better and thus lessen the liability of wars.

(i) Social or welfare work, to secure a broader appreciation of the various social groups with which ameliorative work is done, the types of problems concerned, etc.

6. The following are *eleven groups* of *persons* to whom mental hygiene principles apply. Please list these in order of their importance, using 1 to indicate most important, 2 next in importance, and so on to 11, the least important.

(a) Parents, that they may make good homes, set good examples, wisely guide the development of their children, and avoid injudicious ways and words with them.

(b) Children, that they may form the best habits, attitudes, and aims, learn self-understanding and self-control, and acquire such knowledge and ability to use it as will enable them to handle their internal conflicts and adjust themselves well to the conditions of life.

(c) Teachers, that they may live their own lives efficiently, understand children, adapt studies to each child's need, and develop the best methods of teaching.

(d) Employers and managers of workers, that they may develop favorable conditions and adopt good attitudes toward workers.

(e) Employees, that they may be better adjusted to their work, and develop better attitudes toward their work, each other, their employers and other official superiors.

(f) Physicians, that they may understand better the mental factors in their patients' illnesses, recognize the beginnings of mental illnesses, and advise patients more wisely.

(g) Clergymen, that they may better understand the consequences of incompatible marriages (sexual and temperamental) in the couples they contemplate joining in marriage, distinguish between sinfulness and illness or other conditions in the self-accusation or other mental or social maladaptation of some of their parishioners and not undertake any but "moral" or "spiritual" healing without medical direction.

(h) Judges, that they may have better understanding of mental and social factors in delinquency and crime and the form of deliquency, know the aid mental clinics can give them and understand the use of expert testimony.

(i) Public in general, that it may take interest in use and support of measures for the promotion of mental health, take a more helpful and understanding attitude toward the mentally ill, and support measures and institutions for the better study and care of mental patients and other poorly adjusted persons.

(j) Psychologists, that they may understand the laws of human behavior, the motives back of human conduct, various factors that condition human conduct and adjustment, and what reëducative means can be used to make for readjustment.

(k) Social workers, that they may understand the various factors contributory to different kinds of social problems.

7. From your point of view formulate a definition of mental hygiene and list below. Carry to back of page if necessary.

The questionnaire was sent to 262 persons whose interest and work seemed to be directly or indirectly in the field of mental hygiene. Our criteria of selection of these individuals was as follows: 109 names of the administrative heads of psychiatric clinics were taken from the directory published by the Joint Committee on the Methods of Preventing Delinquency (4); 153 names were taken from the roll of the Year Book for 1925 of the American Psychological Association. These latter were selected on the basis of their instructional or research interests in clinical or abnormal psychology, psychopathology, or psychiatry. By this method a logical two-fold division resulted. The personnel of the first group were physicians, and of the second group psychologists. In a few cases certain names were listed in both directories, but these were so small in number as not to invalidate the division indicated.

The following table shows the returns to the questionnaire:

TABLE I.

RESPONSES TO QUESTIONNAIRE

Class	Sent out	Received	Per cent
Physicians	109	64	58.7
Psychologists	153	88	57.5
Total	262	152	58.0

Two things are significant in this table: (1) As far as voluntary response is indicative of interest in the mental hygiene movement, more than one-half of the total group show this interest; (2) there is no marked difference between the amount of interest shown between two groups of different training and point of view, the difference between the number of responses from psychologists and physicians being a little more than 1 per cent. Generally speaking, the questions raised on the mental hygiene situation seem to be as important to one class of professional individuals as to the other.

It will be noticed further in this study that not all of the 152 individual reports were used. Some reported too late to be included in the original tabulation; on other questionnaires the data were incomplete for certain items; and in a few cases the report was merely a criticism of the technique used.

IV. DETERMINATION OF MENTAL HYGIENE FACTORS TO BE STRESSED [3]

Responses were tabulated for 148 cases, on Questions 1, 2 and 3. The following table shows the results:

TABLE II.

RESPONSES TO QUESTIONS 1, 2 AND 3

Response	Question 1 (abnormal)	Question 2 (normal)	Question 3 (both)
Yes	1	4	143
No	147	144	5
Totals	148	148	148

It is evident from the foregoing "No" responses to Question 1, that the consensus of opinion is not in favor of concerning mental hygiene with abnormal or morbid factors alone. Further, the preponderance of "No" replies to Question 2 indicates approximately the same attitude with relation to normal factors—they are not singular enough in importance to be stressed exclusively. In contrast with the first two questions, the rather overwhelming number

[3] In this paper, only the data from Questions 1 to 4 inclusive have been analyzed. Other data from Question 5 to 7 inclusive will be published under different heads.

of "Yes" responses to Question 3 shows that a large majority regard both morbid and normal factors as being within the province of mental hygiene. In this last case there are only five dissenting voices, these being accounted for by one who believes that morbid factors alone are important, and four who reply that the sole interest of mental hygiene is the normal.

In this analysis, the responses of psychologists and physicians were not handled separately, the obvious unanimity of opinion by both groups on all three questions making such an analysis worthless.

In Table III following is tabulated the results on Question 4—in the event of a two-fold definition, what is the relative importance of normal and abnormal?

TABLE III

RESPONSES TO QUESTION 4

(a)	(b)	(c)	Miscellaneous	Total
8	49	83	8	148
5.4	33.1	56.1	5.4	100.0

In this table 8 cases fall into a "miscellaneous" group, five of these being accounted for previously, such replies stressing morbid or normal factors only. Three others make no reply to Question 4. Hence, the differential analysis is based on 140 cases. This question shows in what measure the two-fold stress, morbid and normal factors, in mental hygiene should be distributed. In the table the percentage distributions are derived on 148 cases. Based on 140 respondents who believe that both aspects are important, the results are as follows:

8 cases or 5.7 per cent would stress morbid factors;
49 cases or 35.0 per cent would stress normal factors;
83 cases or 59.3 per cent regard morbid and normal factors as equal in importance.

To ascertain whether or not there was any definite difference in attitude taken by the two groups of different professional training toward the importance of the separate factors in mental hygiene, an analysis of 140 cases was made. The tabulated results follow:

TABLE IV

RESPONSE TO QUESTION 4 BY PROFESSION

(a)		(b)		(c)		
Physicians	Psychologists	Physicians	Psychologists	Physicians	Psychologists	Total
2	6	21	28	37	46	140
3.3	7.5	35.0	35.0	61.7	57.5	

In the 140 cases cited above were 60 physicians and 80 psychologists. The percentages derived are on the basis of the number of cases in each separate group. A summary of the data in Table IV is enlightening: 4.2 per cent more psychologists than physicians are of the opinion that morbid factors should receive more stress in mental hygiene; on the question of normal factors, the two groups are identical; and as to the equality of morbid and normal factors, 4.2 per cent more physicians than psychologists believe that the two mentioned factors are equal in importance.

While there may be a popular tendency to decry any ameliorative work with the social flotsam, such does not seem to be the opinion of scientific thinking individuals. This is evidenced by the results in Table II, Question 3, in the overwhelming majority of respondents who believe that mental hygiene is significant to both the morbid and normal. However, the amount of stress as shown in Table III, which each factor should receive, varies considerably. A relatively small percentage would make the morbid the chief interest of mental hygiene; a very much more considerable number would stress the normal. But by far the largest number are of the opinion that the morbid and normal are of equal importance. Whatever else such results show, they at least indicate the tendency of more recent opinion on the mental hygiene movement. This gradual incorporation of a larger body of tenets may be explained by the modern attention to prevention rather than cure of maladies. The watchword of medical science now is to eliminate those conditions which are derogatory to a healthy physical regimen. May not the foregoing evidences demonstrate tacitly the same thing with relation to mental health? As Williams (13) has so well expressed it, "Emotional disturbances are . . . earth born. We need go no further than ourselves and our immediate environments, past and present, to find the source of the difficulty and to trace its course." Realizing the potent rôle that various behavior patterns, habit trends, conduct mechanisms, or environmental conditionings can mean in the success or failure, adjustment or maladjustment of the individual life, mental hygiene, influenced largely by dynamic psychology, has come to give more and more attention to the social processes that produce the normal individual. Mental hygiene is concerned with every medium or agency that influences or conditions human behavior.

To say that there is a lessening interest in the application of mental hygiene principles to the morbid would be to assume more than this investigation shows. Rather the program has been

enlarged to meet greater needs. And may this not be a happy situation? Unwarranted pessimism dictates that to do anything of a constructive nature with the insane, feebleminded, criminal, delinquent, and dependent is hopeless. While not subscribing to this gloomy outlook, yet undoubtedly mental hygiene work with the morbid or abnormal is fraught with some difficulties and many limitations. That those who are permanently incarcerated should have the best of care needs no argument; that delinquency and crime should be made the object of scientific research with view to its decrease goes without saying; that dependency should be relieved is obvious; that by the application of sane eugenics an effort should be made to reduce the population of the mentally deficient is almost axiomatic; but with mental hygiene working at its highest efficiency with any of these groups, a certain number of social liabilities is inescapable. Even with the best of curative devices, a large percentage of morbid ailments are irremediable by any form of therapy. Whereas, with mental hygiene taking its point of departure in the initiation of a positive, constructive, preventive program directed toward the achievement of the normal, well adjusted, mentally healthy individual, social and economic liabilities are reduced to a minimum. And those unincarcerated who gravitate toward unfitness are perhaps wholly biologically inadequate.

Between the physicians and psychologists who express opinion on the relative importance of morbid and normal factors, no great discrepancy is evident. From the identity of the percentages of answers to "b" of Question 4, it seems that there is an appreciable number of scientific thinkers in both fields who are of like opinion as to the importance of mental hygiene to the normal.

There is no marked difference of opinion between physicians and psychologists on the equality of morbid and normal factors. Evidently, the popular notion extant in some spheres that the chief interest of the physician is the study of serious mental deviation is an error. The physician is probably as much influenced by the tendencies of modern psychological therapy as the psychologist himself. And one other contradiction of the previously mentioned popular notion is shown in the manner in which the two groups respond to "a" of Question 4. Even in a small group, more than twice as many psychologists as physicians advocate stressing morbid factors in mental hygiene.

Whether or not the present study portends a gradually lessening interest in the morbid on the part of mental hygiene is impos-

sible to say. The fact that nearly 25 percent more of 140 cases reply that the morbid and normal are equal in importance than those who would show preference for normal factors, seems to show, at least theoretically, that the greater importance of the normal is not generally recognized. However, it is manifest that the data show an evolution of thinking on the whole movement. Obviously, the initial principles of mental hygiene cannot be used in the wider scope of the movement. In the establishment of a fundamental datum or set of working principles it is very likely that, with years of development to the point of greater scientific accuracy, mental hygiene will recognize separate sets of working principles for the morbid and normal.

The present point of departure lends some tangible answer to the question—What line is to be drawn between the morbid and normal in the application of mental hygiene principles? Beers' (5) original conception of the term was probably of activities directed toward the improvement of the care given patients in mental hospitals. While this concept still has a part in the mental hygiene program, the boundaries to-day have been greatly extended, the meaning of the term elaborated, and more progressive ideas added until now it covers a widespread field. Perhaps this newer concept is no better expressed than in a quotation by Bancroft (6) from one of the publications of The National Committee for Mental Hygiene.

"The National Committee for Mental Hygiene and its affiliated state societies and committees are organized to work for the conservation of mental health; to help prevent nervous and mental disorders and mental defect; to help raise the standards of care and treatment for those suffering from any of these disorders or mental defect; to secure and disseminate reliable information on these subjects and also on mental factors involved in problems related to industry, education, delinquency, dependency, and the like; to coöperate with federal, state and local agencies, and with officials and with public and private agencies, whose work is in any way related to that of a society or committee for mental hygiene."

The volume of literature, both books and articles, leaves no doubt that the mental hygiene movement of to-day differs radically from that of a decade ago, embodying not only the original basic principles, but is further broadened to meet the needs of a varied number of fields. Added to these *prima facie* evidences comes such objective manifestation of interest as a $50,000 appropriation for mental hygiene work at Yale University (7). Not only this,

but reports from other colleges and universities and more general articles (8 to 18) show the same trend of practical interest, especially as mental hygiene is related to the students in institutions of higher learning. That industry has not been backward in realizing the value of mental hygiene is revealed by many forceful articles (19 to 23) on the subject. Such citations are incomplete and more or less incidental to the present study. A complete bibliography, classified to show the various ramifications that the movement has taken, would necessitate a separate publication in itself.

Some facts are certain, the problems of mental hygiene are so varied, experimental data are so lacking, the movement so suffers from an absence of a delimiting definition, that anything which even remotely resembles crystallized dogma will be forced to await scientific experimentation.

V. CONCLUSIONS

Perhaps it is unnecessary to state that the present study is largely exploratory, and conclusions are made with this in mind. However, results represent the consensus of opinion of a number of qualified judges, those who have come to a certain decision through experience and training. To a degree it is a condensation and crystallization of professional opinion on the subject, to the present time. On the basis of the work done, the results seem to justify the following conclusions:

1. In the past fifteen years there has been a marked shift in the point of view of mental hygiene. This has called for a new formulation or reformulation of general principles for the movement.

2. A logical consequence has followed this shift, namely, the determination of the relative importance of morbid and normal factors in the application of mental hygiene principles.

3. On the questions raised about an equal amount of interest is shown by two professional groups.

4. No sharp demarcation can be made between those who would limit mental hygiene to the morbid and others who would make it apply to the normal alone. On the other hand, a marked preponderance of respondents of both professional classes are of the opinion that both factors must be considered in mental hygiene.

5. Considerable variability of opinion is evident on the relative importance of morbid and normal factors. However, more than half of both professional classes regard the two aspects as being of equal importance, while as to normal and morbid factors, these rank second and third respectively.

6. But little variation of opinion is shown by physicians and psychologists on the question of how the separate factors should be stressed, the percentage of difference in each case being small.

7. As far as the expression of opinion in the present study can be used as a basis for showing the trend of interest in mental hygiene, the results may be said to correlate well with the varied trends of interest manifest in the literature.

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THE EFFECT OF SEQUENCES OF INDIFFERENT STIMULI ON A REACTION OF THE CONDITIONED RESPONSE TYPE

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"THE flesh and blood of a tone in the (musical) melody is dependent upon its rôle in the melody . . . a b as leading note to c is something radically different from the b as tonic note."[1] This statement of Wertheimer's seems to be substantially corroborated by the introspective evidence of those best qualified to judge, namely the musicians. There seems, however, to have been no objective investigation of the problem. The experiments to be described were undertaken in the hope that they might furnish the beginnings of such objective treatment.

If Wertheimer's account is correct, then a musical note heard in isolation is a different thing from the same note heard in a musical melody.[2] Looked at from the objective side, the stimulus value of such a single note should be modified by inclusion within the melody. If then a subject is trained by the conditioned response method to react to a single note his response should be altered when the same note is played to him as part of a melody. It seemed reasonable to regard the test as an *experimentum crucis* for the Wertheimer-Koehler theory.[3] As will appear in the sequel, the experiments did not provide this clear cut evidence; rather they brought out data by which the problem may be redefined, and which are in themselves significant for the study of the human organism's learned responses to its environment. They also corroborate incidentally certain of Pavlov's results which have not before been obtained with human subjects.

An adaption of the Watson technique was used,[4] the apparatus consisting essentially of a wooden lever two feet long by six inches

1 Max Wertheimer. Ueber Gestalttheorie Vortgag Gehalten in d. Kant Gesellschaft. Berlin, 17 Dec. 1924.

2 Cf. Koehler. Die Physischen Gestelten in Ruhe und im stationaeren Zustand, 1929, 42. "A combination is then and only then a real sum of 'parts' or 'pieces' when it can be produced from them . . . without the alteration of one of the 'parts'." Such a sum is contrasted with the melody, which is "nonadditive".

3 The melody was, of course, first used as an example by v. Ehrenfels.

4 J. B. Watson. The Place of the Conditioned Reflex in Psychology. Psy. Rev., vol. 23, pp. 89 seq.

wide, resting on a piece of one inch rubber hose pipe as spring and fulcrum. The shock was administered through a brass electrode screwed to the end of the lever. When the hand was stimulated it was withdrawn, and the lever rose towards the subject, thus changing the shape of the rubber piping which served as fulcrum. This change was recorded kymographically. The recording lever was slung on an extension of the armature of a signal magnet, which acted as a fulcrum when the subject moved his arm, but which could also of itself move the recording point in the opposite sense. On the same signal line were therefore obtained two sets of data, an upward jerk denoting the time of the stimulus, a downward curve the motion of the subject's hand. For the secondary stimulus, that is, the one to which the subject is being trained, was used a metal instrument of the xylophone type, the tones of which, being produced by vibrating cylinders, are relatively pure. When the kymograph was run at the rapid speed, a coarse silk thread was stretched over the cylinder corresponding to the "active" ("right" or "critical") tone, and the note struck through the silk, the resulting jerk completing an electric circuit and registering the time of striking. This method did not dull the tone. The notes to which the subject was not being trained—the nonactive, "wrong" notes, . . . were registered by slinging one end of the instrument on a rubber band, which gave slightly when the note was struck and completed another circuit. The latency of the response could thus be measured with sufficient accuracy for our purpose. When the kymograph was running slowly, the time signals were made by hand. The signal magnet was muted so that it was inaudible to the subject, who was separated by screens from the recording apparatus and the operator. A four volt Monarch storage battery was used for the electric stimulation, with a Harvard Porter inductorium set at from 2 to 4.

In all, nine subjects were employed, of whom three survived the rather unpleasant ordeal, and developed well discriminated responses; one, a boy of nine, responded to the "right" note, but was unable to learn not to respond to the "wrong" ones; three did not develop conditioned responses at all, one after more than eight hundred combined stimulations, another after almost a thousand. Two subjects, one a boy of fifteen, the other a freshman at the university, were entirely discomfited after the first half hour. It is probable that with the improved technique later developed all but the last two could have given responses at least to the critical note. Finding from later conversations with these non-responding subjects that they thought they were under-

going a test of "nerve" or "ability to be fooled", we read latterly the following set of cautionary directions:

This is an experiment in learning. It is not a test of endurance or nerve or of ability to be fooled. You are asked to behave in an entirely natural way, acting as you might imagine an animal would do in the same situation. Please do not make up your mind that you will or will not behave in a certain way. We are trying to find out what normal human beings do, not how much they can stand or whether we can fool them.

It may be that the reading of these instructions, carefully worded though they were, would necessitate the giving of some name other than conditioned response to the reaction obtained. The point is, however, immaterial for the purposes of the investigation. It should here be mentioned that, throughout the experiments, it was difficult to avoid the impression that, in training the human subjects to react to so elementary a situation, the very simplicity of the conditions acted as a complication. As Professor Cason puts it:[5] "The man analyzes the situation and cannot be 'deceived' so easily". A simpler nervous organization might well have proved more efficient in this particular task. At any rate, when the directions were read, the difficulty, mentioned also by Hamel,[6] seemed to disappear.

The latency of the reaction was that of a so-called "discriminative" response, being of the order of 400 sigma. The median value of 43 observations on one subject was 366 sigma, and the average value 427 sigma, the mode lying between 300 and 400 sigma. This appeared to be longer than for the response when the primary stimulus (shock) was given (average of fourteen observations on the same subject 224 sigma); with the wide range of nearly identical stimuli used, it is probable that the latency of the response could never be brought down to that of the primary response. We did not explore this possibility, nor did such examination as we made of the influence of various factors [7] on the reaction time yield positive results.

With each of the three surviving subjects who developed well differentiated responses one point came out unequivocally. Inclusion of the active note within a musical phrase may change the

[5] Cason, Hulsey. The Conditioned Reflex or Conditioned Response as a Common Activity of Living Organisms. Psy. Bull., 22, no. 8, 1925, p. 460.

[6] Hamel, I. A. A Study and Analysis of the Conditioned Reflex. Psy. Mon. no. 118.

[7] E. 9, the average of 14 reactions just before and just after the arpeggios was exactly the same, viz. 400 sigma.

stimulus value of this note to such an extent that the trained response disappears. The following table exhibits this.[8]

TABLE I

Subject S. Age Seventeen (Third Year High School), April 6. Active Note, Number 7. No Melody

The table is to be read as indicating that three successive series of stimulations, numbering 49, 54, 90, respectively, were given with the following results:

Total Stimulations	Combined Stimulations	Stimulations with non-active note	Stimulations with active note (no shock)
49	1 (6th in series)	33, 4 false responses	15, 13 positive, 1 doubtful
54	0	48, no false responses	6, all positive
90	0	77, 6 false, 2 doubtful	13, all positive
193	1	158, 10 false, 2 doubtful	34, 32 positive, 1 doubtful 1 no resp.

It will be seen that the subject had, by this time, developed a response that was to a high degree discriminated. Of 193 total stimulations, one only was a combined stimulus, consisting of both shock and active note; 158 consisted of the notes that were being trained out, that is to say of all other notes but the active one, together with some noises (taps on the wooden table with the hammer), and of these 158 only ten were certainly followed by reactions, 2 were doubtful, the rest were ("correctly") not so followed. Of the thirty-four stimulations with the active note, thirty-two were ("correctly") followed by responses, one was not so followed, and one was doubtful. It should be pointed out that the one stimulation with the active note in these three series that was not followed by a response came after eight non-active notes.[9] Furthermore, there seems to be a progressive improvement ("practice effect"). Of the last twenty active notes, all were followed by positive responses, while at the same time the responses to the non-active notes remained proportionately the same, or slightly diminished in number (4 in thirty-three "correct" in the first 49 total stimulations, as compared with not more than 8 in 77 during the last 90 total stimulations, or, on the more favorable construction, 8 in 125 in the last hundred and forty-four total stimulations). The order and number of stimulations was intentionally made capricious, so that the subject might not guess what was coming next. Later in the experiment the subject improved

[8] The subject had previously received 486 combined stimulations.

[9] Pavlov claims a similar result as evidence that a non-active note sets up a positive inhibition. See Morgulis, S., Pavlov's Theory of the Function of the Central Nervous System. J. Anim. Behavior, 1914, 4, 362.

this record, sometimes going through a similar series without a shock at all and without making a single "mistake". It will be seen that this fact of improvement makes statistical analysis very difficult. An exact analysis is perhaps impossible in this type of experiment. The human nervous organization is so extraordinarily sensitive to practice effects, that each stimulation is, so to speak, unique, so that results can hardly be rigorously compared from one stimulation to another of the same subject. A real statistical treatment could perhaps only be made by training a statistically adequate number of subjects, and comparing the total records from start to finish, and at this thought the stoutest heart might quail. The results are however, sufficiently accurate for the immediate purpose of the inquiry.

After the above described stimulations, in the same session, the following series was given.

TABLE II

Subject S, April 6th. Continuation of Table I. Critical note, number 7
(No Melodies or Arpeggios Previously Given)

Tune 1—7, 7, 7, 3, 3.	Tune 1—12, 7, 6.	Tune 1—7.	Tune 2—12, 7, 5, 6, 5, 6.	Tune 2—7.
n p p p n n	n n p n	n d n	n p n n n n	n p

Tune 1 does not contain the critical note, and was given as a control; Tune 2, "Home Sweet Home", contains the critical note twice; n beneath a number signifies that this particular note on the instrument was played, but was not followed by a response, p that the note was followed by a response; d, used in one instance, signifies a doubtful response.

Thus in this series note number 7, the critical note, was played seven times in isolation, with positive responses certain in all but one case which was doubtful. It was also played four times, twice in each tune number 2. When played in a melody, it was in no case followed by a response. In the whole session, the active note, number 7, was given forty-one times in isolation. These notes were followed by positive responses in thirty-eight cases; one case was not followed by a response; two were doubtful. The same note was played four times in a melody. In none of these four cases was there any response.

A further series of data from the same subject a week later may be added. Preceding the below tabulated stimulations, the critical note, number 7, was given twelve times,[10] always with a response following. Arpeggios were then played, fourteen in all, each containing the critical note, and the speed of these was first

[10] Interspersed with non-critical notes, scales, and so on.

reduced from a rate of about 300 beats to the minute to sixty to the minute, and then still further to a rate of 48 to the minute. Only in the last was there a response.

TABLE III

Subject S. April 12th

| | | |

the beginning of the third. There was no response to the other thirteen stimulations with the active note in the melody. Three active notes played in isolation after the melody were all followed by responses. Thus, there were nine responses to the active note played in isolation, one failure to respond under the same conditions and one response to the same note played fourteen times in the melody. There seems no doubt that this response was due to the relative isolation of the note at the beginning of the line. The subject, later asked what the tune was, said he "thought" it was "pleasures and palaces", but was not quite sure. During the same session a series was given including notes 1, 3, 5, 8, played as an arpeggio (first presentation). The following results were obtained:

TABLE V

Subject J. Oct. 20, 1926. Critical note, number *5*.

Stimulations:	5,	5,	1,	A,	5,	5
Responses:	p	p	p	n	p	n

A signifies the notes 1, 3, 5, 8, a common chord, played successively as an arpeggio, at a rate of about five to the second.

It will be noticed that, as often with this subject, note number 1 is positive; also the fourth repetition of the critical note is negative. Preceding the arpeggio nineteen stimulations with note number five in isolation were positive.[11]

For the third subject, C, we have the following evidence. The session this time consisted of only six stimulations.

TABLE VI

Subject C, College Junior. Critical note, number *5*. No sequence previously placed. April 8, 1926

Stimulus:	5,	5,	5,	5,	5,	Scale
Response:	p	p	p	p	p	n

The scale consisted of the notes 1, 2, 3, 4, 5, 6, 7, 8, played at about 300 to the minute. (On the same day subject S gave no response to any of four scales that were interspersed in a series consisting of forty critical notes, all positive and seventy-nine non-critical notes and other forms of stimulation.)

[11] During the entire session the critical note was followed by a response 77 times, and was not so followed 16 times. Of these 16 failures, 11 occurred during the first half of the session, none in the 19 stimulations immediately preceding the playing of the arpeggio, which fell in the third quarter of the time, as did the melody described. For the purpose of the experiment it seems justifiable in dividing the session into a practice period and a test period, and the critical experiments were placed in the test period. The fact to be explained is that nineteen repetitions of the note, interspersed with non-critical notes, showed a positive response, while the same note was presented twice in a melody, with no response, and once in an arpeggio, with no response.

Subject C's first arpeggio was unfortunately given him during a period of the hour's session when his response was not functioning well, the "practice" period. The total stimulations during this hour may be subdivided as follows.

TABLE VII

Subject C. College Junior. May 22, 1926. Critical Note, *5*.

Number of stimulations with critical note.....	10	21	15	5
Number of responses.....	5	16	15	5

The first arpeggio was played during the first period, and no response followed (arpeggio 1, 3, *5*, 8 played at about 300 to the minute). As in this period there was an even chance whether he would or would not respond to his note in isolation, we cannot admit this experiment as proof that *on a first presentation* the notes of the arpeggio had any effect. Seven more arpeggios were given, three of them during the period of the last twenty stimulations, which were uniformly positive. None of the arpeggios was followed by responses.

In addition to the cases analyzed, it may be worth while to summarize certain other sets of experiments which lead to the same conclusion. On June 22 subject C responded six times running to his critical note, failed to respond to a scale played at about two notes to the second, and responded twice again to his own note. In the same session he responded twice to his note, failed to respond to an arpeggio containing his note, and again responded to his note. Between April 12th and July 26th we have records of thirty-seven arpeggios played to subject S, all containing his note, but none of them eliciting a response. Of these thirty-seven, twelve were played on August 7, and on the same date were played thirty-three active notes in isolation. None of the arpeggios was followed by a response, possibly one of the isolated notes failed to elicit a response.

We may, then fairly claim to have proved that the inclusion of a tone within a musical unity, such as a melody, scale, or arpeggio, may destroy the response habitually following the same tone in isolation. There is also fairly conclusive evidence that this may take place the first time such a tone is included in the unity. For subjects S and J the evidence on the point has been given; for subject C we have, for the effect of a musical scale, evidence that could have been duplicated by chance only once in thirty-two times. The point as to whether the musical sequence exerted this influence the first time is important, as it might be argued that the second time the subject heard his note in a sequence with other notes he

would recognize that no shock would come, and therefore would not take his hand from the electrode. As a matter of fact, this objection would not be justified. For (1) Subject S responded positively to his own note in two tunes, viz. "The last Rose of Summer" and "Massa's in de cold ground".[12] So that, at least in his case, one cannot properly speak of a warning's being necessarily given by the preceding notes of the series. Further it does not necessarily follow that any change in effect of the sequence will be such as is demanded by this objection. Subject S as stated, gave no response to thirty arpeggios played from time to time between April 12th and July 26th. On October 6th he responds to his note in twenty-two arpeggios running. It seems that there has taken place a process of analysis, perhaps similar to that which occurs when we gradually grow familiar with a person or place, and learn to recognize individual details before unnoticed. We tried for a long time to induce a similar analysis in C, but this subject refused to the end to respond to even such a simple complex as 3–5. For the third subject, J, we have not sufficient data to offer a conclusion. While then the matter cannot be said to be as yet fully decided, it is clear that it by no means follows that any change in the sequences effect that occurs will be in the direction demanded by this objection. The case for which we have the most complete data shows, in fact, an opposite direction of change, namely a tendency to exert less and less influence on the active note.

The more specific problem may now be formulated. To what are we to attribute the effect of the musical sequence? Is the determining factor the *unity* of the arpeggio, which is a Gestalt, psychologically prior to its component elements, one of which is the subject's critical note? Or does the factor of unity not enter into the effect? In the latter case, if the determining factor lies in the notes considered in isolation, does any collection of notes exert the same checking influence? Or does this depend on the relation of the isolated notes to the critical note, to the number of such notes employed, or to some other factor concerning these notes considered in isolation? And in either of the larger alternatives, whether we adopt the hypothesis of unity or disconnected effect,

[12] In the first of these, one should perhaps say that, the active note occurring early in the series (number 5), the subject "attended" to the individual notes, there being as yet no melody. The first 4 notes, nos. 1, 2, 3, 8, on the instrument, did not form part of a musical phrase as do the notes of an arpeggio. In the second case, the active note is strongly accented in the melody ("down *in* the cornfield"). Thus the differences might be said to depend on the internal structure of the melodies concerned. This is, of course, pure conjecture. The fact remains that one melody, "Home Sweet Home," modifies the stimulus value of the critical note included in it at a certain point, enough to prevent a response, another melody does not.

does the stage of training enter as a factor? Or musical ability or education? We are lamentably far from an answer to all of these questions. On some of them we might have brought more adequate evidence to bear had the problems formulated themselves before, instead of during, the course of the investigation. Yet there are a few results pertinent to the larger problem.

On October 15, subject J reacted as follows.

TABLE VIII

Subject J. Oct. 15. Critical note, 5. Interval between stimuli, from 4 to 5 seconds.

Stimulation:	S,	5,	5,	5,	5,	5,	12,	10,	8,	6,	7,	6,	5,	5,	5,	5,	5.				
Response:	p	p	p	p	p	p	n	n	n	n	n	n	n	n	n	n	n.				
Interval to change lever on kymograph.																					
Stimulation:	5,	5,	5,	5,	5,	5,	12,	10,	8,	6,	7,	6,	5,	5,	5,	5,	5,	5,	5,	5,	5.
Response:	p	p	p	p	p	p,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n.
Interval to change lever.																					
Stimulation:	5,	5,	5,	5,	5,	12,	10,	8,	6,	7,	6,	5,	5,	5,	5,	5,	5,	5,	5,	5,	5.
Response:	p	p	p	p	p	p	n	n	n	n	n	n	t	p	p	p	t	p	?	n	n.

The "t" signifies that there was on the record a slight movement; "?" signifies a still smaller wave, which may or may not indicate a response. S signifies a combined stimulation.

Examination of the tables shows that the subject was uniformly responding to note 5 at the beginning of each kymograph line (there are 15 such responses in all, with no exception). It is clear also that for the first two series he was uniformly failing to react at the end of the line, and that after the interval necessary for changing the lever, about half a minute, he was again reacting to the active note. There can be only two explanations. The first would be that the repetition of the active note for the first five times has caused the response to degenerate,[13] that this degeneration has persisted during the sounding of the non-active notes, and is shown by its effect on the response thereafter. Degeneration as the result of repetition is claimed by all the workers. It is, however, inadmissible as an explanation of the facts of table VI, because of the further fact that there are more positive responses after the non-critical notes at the end of the third series of stimuli than at the corresponding place in the first two series (four definite responses and two slight responses, out of ten, as compared to no responses out of fifteen in the first two series). That is to say, if there has been degeneration it has decreased. But degeneration would be expected to progress, rather than diminish. Furthermore, the time interval, four seconds, is altogether too long to induce in a well established response degeneration after five repe-

[13] *E.g.*, see Cason, L.c. p. 449. This phenomenon should be distinguished from the permanent disappearance of the reflex which was also obtained in Pavlov's laboratory.

tions. We have for example the record of subject S who, on October 6th, responded twenty-two times in sixty-six seconds without impairment to the response. In our experience, a much more rapid rate of repetition, numbering several to the second, is necessary to cause such rapid degeneration as would here be necessary to explain the facts. Degeneration cannot then be the cause of the disappearance of the response. The cause must then lie in the non-active notes which have in each case intervened. "If", says Beritoff,[14] "first an inactive stimulus and ten seconds or so later an active individual stimulus is applied, the effect of the latter is weakened. Pavlov explains this by assuming that 'a certain time must pass . . . to allow the inhibitory process to pass off'." Beritoff questions the explanation, but not the fact. Our results here given, which are typical of a number obtained, seem to be an instance of this persistence of weakening effect associated with an inactive stimulus. This explanation throws light on certain other puzzles. During the period of training, to train out the response to the "non-active" stimulus seems often to weaken the response to the active one. Reference is made to this by Beritoff (l. c. p. 137), and the point will not be elaborated here. Again, Subject S responded in a melody where the critical note occurred early in the tune, and also in one where a longer interval, about two seconds, occurred between the preceding note and the active note. In both these cases the summated weakening effect of the preceding inactive notes would be relatively less. Therefore a response would be more probable. It seems, then, that in certain cases an already known principle can account for the failure of the response to occur when the active note falls in a musical phrase; by this principle the notes of the arpeggio would act as individually weakening factors, not as a unity or Gestalt.

At first sight, however, this seems, in Lashley's phrase, to prove too much. If such weakening effect of a non-active stimulus can persist over ten seconds, in the case of the dog's salivary reaction, then all our active notes coming within an interval say of three or four seconds after the melody, might perhaps be expected to be rendered inactive. This they are not (see for one example, table II). It is necessary here to take into account the fact that the weakening effect of inactive stimuli will under certain circumstances diminish with repetition. Pavlov notes the fact. The adventitious disturbances of the response, he says, rapidly

[14] On the Fundamental Nervous Processes in the Cortex of the Cerebral Hemispheres, *Brain*, 1924, p. 109. Cf. Morgulis, l.c.

become indifferent to the (salivary) gland.[15] Table XII seems to show an excellent example of the genesis of such indifference. For if we regard the disappearance of the response in the first two lines of the table as being due to the intervening inactive notes, then we are faced with the fact that these same notes (or nearly the same) have not had the same effect in the third line. But this is exactly the sort of thing that on Pavlov's account, one should expect to happen. The same explanation may be given of subject S's "analysis" of the complex stimulus, which may be nothing but a growing indifference of originally inhibitory stimuli. By this hypothesis the other notes of the arpeggio at first check S's response, later they come to have no effect on it. Thus the preceding individual notes of the musical sequences would be expected to have a discretely weakening effect on the response habitually associated with the active note.[16] Is it possible, apart from this, to distinguish an effect belonging to the unity as such?

This is the heart of the problem, but unfortunately we cannot claim to have done more than uncover the difficulties. The method of attack would seem to be to compare non-musical sequences with musical ones as to their effect on the response. There is some evidence of this kind which cannot, however, be considered in any way conclusive. On October 13th, subject S was given a series consisting of his own note played twice, with positive response, followed by eleven scales, each containing his note, which was in no case followed by a response. Control stimuli after the scales were positive (twice repeated). A similar series, but with taps on wood, was followed six times running by a response, with controls, before and after, positive. *The non-musical sequence failed to inhibit the response, the musical sequence inhibited it.* On October 22 we tried to repeat this performance for control purposes. Unfortunately, by this time the subject had, consciously or unconsciously, "analyzed" the scale into his own note and other notes, and now responded alike to the musical and the non-musical series. We

[15] L'Inhibition des Reflexes Conditionnels, *Journal de Psych.*, vol. 10, 1913, pp. 1 to 15.

[16] It should be stated that against this hypothesis is the fact that we could obtain no "analysis" of series of tones with subject C. *E.g.* on Oct. 9 he was shocked with the notes 35 at a fifth of a second interval. He responded five times to the notes 35, responded twice to the arpeggio containing this note, and thereafter did not respond either to the arpeggio or to the notes 35. On October 5 he responded four times to his own note, but not to 35 at a second and a half interval. On September 26 he had given no response to 24 repetitions of the same two notes, but had responded consistently (11 times) to his own note. This subject has the best musical training of the three. It may be that he heard the two notes as a musical interval . . . a stepwise phenomenon. . . . He, himself, afterwards on one occasion declared that the notes 35 and the note 5 were "altogether different things".

have never been able to detect any difference between the effect of musical and non-musical sequences of subject C (see note 16), who gave no response to his own note in any kind of sequence whatever. But in working with subject J on November 26th we found a slight difference in effect between non-musical and musical pairs of stimuli; these were formed respectively by tapping the table and playing note 5 (critical note) one fifth second after it, and by playing the two notes 3 and 5 in the same way. There were four repetitions of the series 3–5, with only one reaction, a slight one at the second repetition. Four repetitions of the series tap-5 resulted in one failure to respond, one slight response and two responses. The critical note in isolation was positive six times out of seven. That is, the "musical" pair of stimuli took away the response three times, and left a slight response the fourth time. The "non-musical" pair took away the response once, left one slight response and two full ones. Similarly with the musical scales containing the critical note, there were no responses in four repetitions; while with a similar scale with taps substituted for all notes save the critical one, there were three failures to respond, one possible response and one full response. These results are presented as an indication of the results obtained before this method was abandoned. It was realized that they and any similar succeeding data might also be explained as being due to the separate weakening influence of the component terms of the series. Pavlov claims [17] that notes nearer to the active one have a greater weakening effect on the response. Thus one would expect a difference of effect between sequences composed of musical tones and of taps on wood. We are at present at work on a method which will attempt to eliminate this difficulty.

There should finally be included the account of an experiment which seems to show that, under certain circumstances, the inclusion of a repeated single tone in a melody does not alter certain effects that follow the playing of the same tone out of the melody. The experiments to be described could be performed on one subject only, viz. S. It is therefore with some reluctance that the results are published. There seems, however, to be no doubt as to the reality of the phenomena described, which in themselves have an important bearing on the problem.

Briefly we may say that in this subject the playing of one melody persistently checked responses to long series of active notes played after the melody. On June 16, 1926, there was played

[17] See Morgulis, l.c.

to him Home Sweet Home, with no response to his note, number 5, as it occurred in the tune. A control stimulus ten seconds before the melody was positive, but eleven similar controls after the melody were negative. After a rest, note number 5 was again given (with, of course, no shock) and was positive. The melody was again played and no response followed. Six further repetitions of note 5, spread over 30 seconds, were negative, but again a rest of a minute restored the response to this note. The experiment was repeated on June 18th, when three control stimuli before the melody were positive, two after the melody were negative (implying here, as elsewhere during this study, that there was no response at all, rather than that there was a response in the opposite sense). On June 22 the experiment was twice more repeated with the same subject, and with the same results. Four control stimuli before the melody were positive, six after the melody were negative. In each case the response returned after a rest. Thus, summing up the six occasions when the experiment was made, seven stimuli, in all before the melody were positive, twenty-five after it were negative.

Now Home Sweet Home, as already mentioned, contained note number 5 fourteen times. We therefore separated out these repetitions of the one note, and played them as they stand in the melody; but without the other notes of the melody; we also separated out the other notes of the melody, and played them as they stand in the melody but without the repeated single note. Thus, we divided the tune "Home Sweet Home" into two parts, namely the fourteen repetitions and the other notes. When the former, the repeated note, was played, the active note showed no response after the series. When the latter was played, there might be responses to some of the active stimuli played afterwards, or there might even, as in table IX, be a response to every such stimulus.

TABLE IX

Subject C. Oct. 19, 1926. Critical note, 5

Stimulus:	5,	5,	5,	5	Home	Sweet	Home	5,	5.	Interval	5,	5,
Response:	p	p	p	p	n	n	n	p	p
Stimulus:	5,	5,	5's in Melody	5,	5,	5,	5,	5,	5,	5	Interval	5,	6,
Response:	p,	p	p to first only	n,	n,	n,	n,	n	n	n	p	p
Stimulus:	5,	5	Melody without the repeated 5's:	5,	5,	5,	5.
Response:	p	p	no response	p	p	p	p

On repetition of the experiment on October 26th, the same results were obtained for the first two series, but the melody with-

out the repeated 5's was found to inhibit the active note's response four times out of five.[18] In each case therefore, it was found, that the repetition of the single note in the melody was entirely sufficient to account for the failure of the response to appear after the melody. But there is more than this. We have shown that, to include a series of rhythmic repetitions of a single note in a melody does not necessarily take away the certain effect belonging to the same rhythmic series in isolation. Whether we have here any more than a parallel to the nursery rhyme, Peter Piper Picked a Peck etc., it is difficult to say. Certainly the sounds in the rhyme are said as words including several repetitions of the letter p. And the repetition of the single letter in the sentence seems to exercise a similar inhibitory effect to its repetition out of the sentence.

For the sake of convenience there should be added certain introspective data. Subject S reported spontaneously after the repetition series of note 5 (see last table, note IX), that "there seemed to be a conflict, one says to pull my hand up, the other forcing me to pull it down. Something is fighting . . . the darn thing (the electrode) won't lift my hand up." In the same way, J, on October 15th, after the prolonged playing of the inactive notes, reports spontaneously, "It's funny, I get the right note all those times, but have no desire to pull my hand up". At the first failure of his response after the playing of Home Sweet Home the subject C said: "Professor, you will have to touch me up with the shock, I do not seem to respond after the tune." Throughout, these two subjects have reported that they may have recognition of the note without a response.[19] Thus there seems to be sensory recognition with motor inhibition and the latter must therefore originate after the nervous impulse has left that part of the cerebral cortex concerned with recognition of tone. On the other hand, there is the fact that, as in the last series of experiments, the response can be checked without taking place at all (the subject does not respond to his note in the melody, but nevertheless something has happened during the playing of the melody that prevents further responses afterwards); this seems to show that the cerebral seat of the checking process must be in some region lying on the path of the impulse, prior to the motor

[18] Unfortunately the experiment could not be repeated with other subjects. Subject S had a different note. Subject J, though he was trained to the same note, did not show the same loss of response after the melody. This difference is entirely in accord with Pavlov's reported individual differences with dogs, especially in dealing with inhibitions.

[19] And also recognition of the "wrong" sound, as a tap, with a response.

outlet, which is presumably in the precentral gyrus. Should one think here of associatory areas?

SUMMARY

1. A learned response to a musical tone may disappear when the tone is presented as part of a musical phrase or an arpeggio.

2. The response may also disappear after the playing of a series of disconnected notes, so that the individually checking action of the component tones is probably a factor contributory to the effect described in 1.

3. Certain cases have been recorded where a series of notes forming a musical unity (a "scale" or a musical "interval") function, in their weakening effect on a habitual response, differently from a similar series not forming a musical unity. These cases can be explained, if one adopts Pavlov's conclusions, by the fact that the notes forming the musical unity are "nearer" to the active note.

4. If the tone occurs at certain places in certain melodies, there may be no checking effect.

5. With one subject, the inclusion within a melody of a rhythmical series of tones did not destroy the degenerating effect of this series on the response.

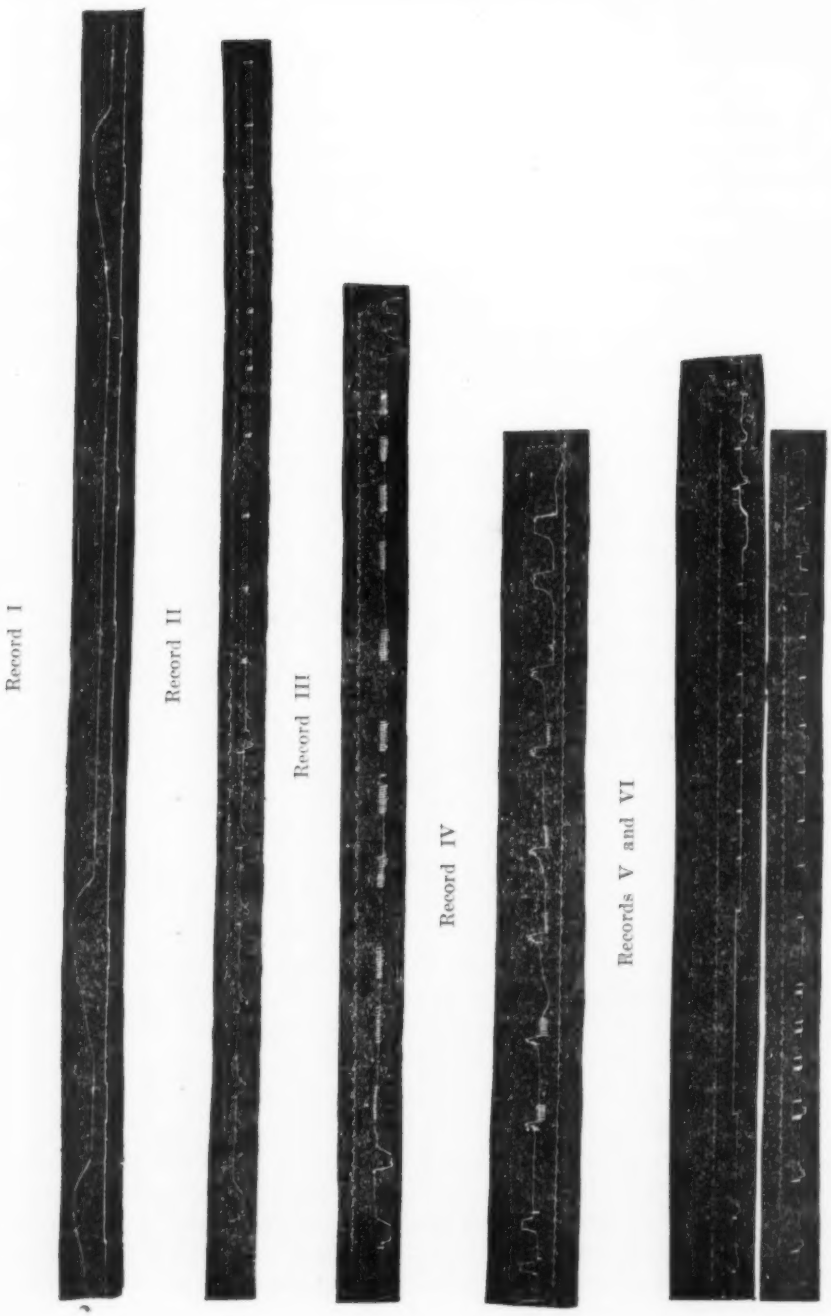
6. These conclusions do not preclude the possibility that the musical phrase or arpeggio, in producing the checking effect on the trained response, functions as a unity (a musical "sentence" or "word"). They define the problem; they do not solve it.

RECORD I

Showing the effect of including the stimulus note in an arpeggio.

Subject S. August 2, 1926.

The top line records seconds, one second elapsing between the vertical mark and the next similar vertical mark. The lower line records both the stimulus and the response, the former being shown by a slight oscillation of the line, the latter by a *downward* wave. The subject had previously been trained for about five months, so that he now responds to note number 7 on the instrument without a shock, but to no other notes. The record shows a stimulation with note number 7, without shock, followed in about three-tenths of a second by a response. Beginning a second and a half after the first stimulus, an arpeggio is played, consisting of notes 5, 7, 9, 12, the four notes being played in something over a second.


Record I
Record II
Record III
Record IV
Records V and VI

There is no response to note 7 thus included in the arpeggio, but two responses to the same note in isolation repeated about two and four seconds later.

RECORD II

Showing the effect on the response of isolated nonactive stimuli.

Subject J. October 15, 1926. (See Table VI, Series 1.)

The top line registers seconds. An upward vertical jerk on the lower line marks the stimulus, a downward curve the response. The subject was given first a combined stimulus, which was followed by a somewhat more vigorous and prolonged response than are the succeeding stimuli, which consist of note 5 alone. Five repetitions of this single stimulus are followed by responses. Following these, the double upward jerks each signify the playing of a nonactive note. These follow at intervals of about four seconds. Thereafter, five repetitions of the active note, marked with single jerks, are all negative (one is not shown on the record as reproduced). It is to be noticed that the response returned after the kymograph lever was changed.

RECORD III

Showing the effect of including the stimulus in a (musical) scale.

Subject S. October 13th.

The active note, number 7, is given twice, being represented by the upward vertical mark on the response line. Eleven musical scales are then played, consisting of notes 1, 2, 3, etc., on the apparatus in succession, up to note 14. Although each of these scales included note 7, no appreciable response followed. Note number 7 is twice again given after the scales, with two responses. The irregularities in the line between the scales are due to slight changes in tonus. It is just possible that there was a minimal response at the 4th and 7th repetitions of the scale. Time above in seconds.

RECORD IV

Same as Record III. Showing the effect of including the stimulus in a nonmusical sequence.

This record should be contrasted with record III. Note number 7 was followed twice by responses. A series of thirteen taps on the table was then given, with note number 7 between the sixth and eighth tap. This formed a series similar to those of

record III, but with taps substituted for all but the active note. This was repeated six times and a response follows the active note each time. Two control presentations of note 7 after the sixth series were both positive. It will be noticed that, rather unusually for this subject, there was a very slight response to the first tap of the first series. Irregularities in the line are due to slight changes of tonus; we have observed this on other occasions when experimenting with scales.

RECORDS V AND VI

Showing the effect on the response of a melody in which the stimulus is included fourteen times.

Subject C. October 19, 1926.

This subject's active note is number 5. It was played twice as a control at the beginning of the record, the vertical jerks marking the time of incidence. The melody "Home Sweet Home" containing the active note, was then played without response, the signal on the stimulus-response line marking the period of playing. Thereafter, seven repetitions of the active note are followed by no response. The melody contains this note fourteen times. In record 6 these repetitions of the active note were played in exactly the same time as they occur in the melody, but without the other notes, the operator humming the tune to himself and only striking note number 5. (Two notes which occur in the second half of the tune were inadvertently omitted.) The same inhibitory after-effect was produced by the repetitions of the active note as by the melody. In each case the response reappears after a rest, the kymograph being stopped and shortly afterwards restarted. A further record was made immediately after, showing the effect of the rest of the melody without the repeated note. Four repetitions of the active note after this truncated melody were followed by a response. Owing to his peculiar method of lifting his hand from the apparatus, subject C's recorded response is often smaller than that of the other subjects. Time above in seconds.

REVIEWS

SHELLSHOCK AND ITS AFTERMATH. By Norman Fenton, Ph.D. St. Louis: C. V. Mosby Co., 1926. Pp. 167.

Dr. Fenton has performed a real service in collecting data relative to the social status of 1,000 war neurotics after their return to civil life. The men constituting the basis of these studies were originally patients at Base Hospital No. 117, A.E.F. In order to orient the reader, a review is given of the organization, development, and aim of this hospital, and a preliminary description and analysis of the group of men who developed neuroses. Among the interesting features of this analysis was the fact that the incidence of shellshock was higher in the professional soldier than in the national army of drafted men. Further, that in over one-third of the men, there was no evidence either in the family or in the personal history of any neurotic taint. As no intelligence tests were done, it was necessary to infer the intelligence level from the patient's educational status. On this basis, the war neurotic group were found to be superior to an unselected group in the American army, and there was a relatively high incidence of neurosis in men drawn from clerical and professional work. Two studies were made after the return of these patients to the United States. The first was in 1919–20, and the second five years later, in 1924–25.

In the study made in 1919–20, the men were grouped in five categories: (1) "Normal"; back on the job. Many of these men noted a tendency to being easily excited, a little nervous, forgetful, and complained of occasional slight headaches and dizziness.

(2) "Neurotic"; full time but nervous. In this group, although able to work, there was personal unhappiness, more somatic symptoms in the nature of tremors, ties, speech defects, and jumpiness, and frequently inability to concentrate, memory disorders, and "spells".

For the purpose of this study, the patients in groups 1 and 2 were considered as well. Those not considered well were subdivided as (3) "fatigued"; work about half-time; (4) "disabled"; no work; (5) "psychotics". The psychotic group included ten men where the diagnosis was changed from the discharge diagnosis of psychoneurosis.

The clinical groupings used at Base Hospital No. 117 are discussed in some detail both as to diagnosis and recovery in relation to the type of neurosis present.

Of the 1,000 patients studied, 60 per cent were considered well, and 40 per cent were unable to reëstablish an adequate adjustment and were in hospitals or having difficulties sufficient to keep them from being self-supporting. It was found that the typical war neuroses: concussion, gas, and anxiety types, did much better than effort syndrome cases, neurasthenics, psychasthenias, and hypochondriacs. In general, the younger men

made a better adaptation than the older men; and those originally in occupations requiring more intelligence made much the better readjustment.

During the five years between the first and second studies, many agencies united to give aid to the war neurotic. The review in 1924–25 reached approximately the same number of patients and was conducted in a similar manner to the first study. It was found that 20 per cent had availed themselves of some form of vocational training. There had been a marked tendency toward improvement among the men in the follow-up groups, and 20 per cent more had been rehabilitated to the extent of being self-supporting, leaving only 20 per cent of the original group still a burden to the community. Again the typical war neuroses lead in recoveries with the constitutional types; that is, neurasthenics, psychasthenias, and effort syndromes still being in difficulty. Except for a small group in mining, the professional group were still doing the best. Many men were unable to take up the type of work which they had done before the war, and it was found that 39 per cent were beneath their previous level, and 21 per cent in the same type of work. Agriculture seems to offer the line of work most favorable for a return to a normal adjustment in patients unable to reach their previous level.

The marital status of the patients gave no indication of the number of separations but showed 3.1 per cent were divorced, which is very high as compared with the census for the whole country.

Apparently very little was gained in an understanding of the cause of psychoneurosis. It was a striking fact, however, that neuropathic taint did not seem to be a factor in determining the occurrence of the neurosis, and that there was only an occasional psychosis developed from the neurotic group.

With reference to therapy, delay rendered treatment more difficult and less favorable, due probably to the development of a habit element. Fenton believes that "a clearer understanding of the condition will come from a simple analysis in terms of habit formation than from any more complicated psychological explanation". Intelligence as indicated by educational attainment seemed to facilitate readaptation as much as any single factor.

SOCIAL ADJUSTMENT. By Robert Cloutman Dexter, Ph.D., Professor of Social and Political Science, Skidmore College. New York: Alfred A. Knopf, 1927. XII, 424.

Professor Dexter in writing this book has a mission to perform. His experience as General Secretary, Charity Organization, Montreal, has convinced him of the need of a more general and intelligent interest in social problems among statesmen, physicians, lawyers, teachers, captains of industry, and philanthropists. The book therefore is designed primarily to arouse the interest of these classes, and to call to their attention those measures that promise most for social progress. Though this is the chief interest of the author, he hopes, and with good reason, that the book may be of use in the classroom.

The reviewer has no hesitation in saying that the author has done an excellent job. It would be hard for one to read the book without being convinced that there are many things in our society, which in spite of the admitted complexity should be and can be eliminated. Nor is the author like many who have missions a special pleader. Throughout the book he maintains an attitude that is impersonal and objective to an enviable degree. One gets the impression that he is able to do this on account of his wide experience and thorough mastery of his subject. As a result he is well able to let the facts speak for themselves. It is largely for this reason that the reviewer anticipates that his book will have wide usefulness in informing those who are desirous of helping to make a better society. For class work and for the student who wishes to study a subject further, the usefulness of the book is greatly enhanced by an extensive bibliography at the end of each chapter, and by the appendices which list the more important periodicals dealing with social problems and the various organizations interested in social welfare.

The scope of the book may be inferred from the following list of chapter headings: Poverty, Its History and Significance; Causes of Poverty; The History of English and American Poor Relief; The Century of the Child; Thwarted Childhood; The Feeble-Minded; Life-Long Children; Old Age; The Ills Which Flesh is Heir To; The Physically Handicapped; The Mentally Diseased; Drunkards and Drug-Addicts; Health and Society; Sex and Family; Crime and Punishment; The New Völkerwanderung; Social Case-Work; Group Organization and the Community; Science and Social Adjustment.

An exhaustive treatment of all these topics is naturally not to be expected. Yet the author in practically all cases succeeds admirably in presenting the problem, in showing the need of a better adjustment, and in offering suggestions looking forward to better adjustment. The subjects which he treats more thoroughly than the usual textbook are childhood, sex and the family, crime, the movements of people, and community organization. This gives the book some advantages as a text, but it also loads it with the disadvantage of cutting across many courses usually given in the departments of sociology.

It is hard to select from a book covering such a mass of material those things which merit special comment. The reviewer was particularly interested in his suggestions regarding the reform of our police system and criminal procedure, his description of moral conditions in small towns, his views on alimony, sex education and the family, and in his criticism of the attitude of well-to-do parents toward their married children.

Deserving of more than passing mention is his treatment of old age and poverty. We are accustomed to speak of thwarted childhood. Professor Dexter shows that we can speak with equal justice of thwarted old age. "Dependence, illness, lack of care and consideration, all create what may be called thwarted old age—an old age devoid of comfort, affection, and respect, and filled with suffering and want." (159) The piti-

ful fate of the vast majority of industrial workers who reach an old age is well able to move all but the most callous. Able and willing to work, fearful of losing their status and freedom because they can no longer find work, anxious to live where they have been living and to work as they are able, they are denied the satisfaction of all these wishes by being segregated in poorly provided almshouses to live without respect, love or hope. Nor should society seek to escape its responsibility by preaching thrift. As the author says, "It is easy for business men with corpulent bank accounts to dogmatize about saving, but for the ordinary worker with the day by day incidents of unemployment, illness, death, and disability staring him in the face to be met with a wage that, even if regular, would scarcely suffice to furnish him and his with the necessary comforts of civilized life, such easy maxims are an insult." (177)

Such a condition is a severe indictment of our society: "That a situation should exist in the wealthiest country in the world by which a million and a half worn-out workers face daily and hourly the imminent dread of want, with no means of protection except care at the hands of children and relatives, in many cases already over-burdened, or the cold comfort of the poorhouse, does not speak well for the industrial or social order, nor is it creditable to the far famed generosity of the American Nation." (167) No wonder the workers of the world feel aggrieved and that many of the poor become delinquents.

Closely related to the problem of the care of the old is that of poverty in general. While the reviewer agrees in the main with Professor Dexter's account of the causes of poverty, he does wish that he had attached more importance to what he terms "Non-Social Orientation in Economic Life". For to the writer this seems to be fundamentally the great cause of poverty America. We do not need greater natural resources, or technical knowledge of production, or men with ability to organize vast productive enterprises, or men anxious to work. We have an abundance of these, but for some reason we are unable to use them so as to meet the legitimate needs of a large part of our population. To one who tries to look at conditions directly it seems strange that we should possess the physical equipment for production, men willing to work but frequently unable to do so for lack of employment, and at the same time people in great need of the things which the idle equipment and idle men might well be making. To put it mildly there is a non-social orientation in economic life.

While the reviewer usually finds himself in hearty agreement with the author, he must take issue with him on two or three of his positions. His charge that emotionalism in sex is due to such cultural accidents as Pauline Christianity and Victorian prudery will not bear examination. His tendency to minimize the differences between man and woman causes him to neglect important differences. A shift of emphasis in his account of mental diseases from the physiological to the psychological would appear highly desirable. It is of course well to understand the physio-

logical basis of mental disorders, when such can be discovered, but it is more important for the student of society to recognize the important rôle which the stresses and strains of social and economic relations play in producing mental disorders.

The reviewer also finds himself in radical disagreement with Professor Dexter's treatment of National Prohibition. Like the newspapers and the magazines he delights to direct charge after charge against it from the least expected sources. Prohibition is charged with causing fashionable and intelligent people to drink again, though he does not tell us when it was that no fashionable and intelligent people drank. Marital unhappiness is in part laid to the door of prohibition, since nowadays many young people get married half-intoxicated. Increased difficulty in maintaining discipline in colleges and universities is laid at the door of prohibition in spite of weighty evidence to the contrary. Also the charge against alcohol is dismissed. It would seem as if we have been abusing an innocent beverage. For if it is taken in moderation it is not injurious and adds a great deal of satisfaction and enjoyment to life; and if by chance one drinks excessively we may mark him as pathological or defective. One wonders if this last claim is not based on a definition rather than upon a careful investigation. One may well admit that the individual who allows himself to be ruined by alcohol was weak, but would his character have been undermined had he not developed a great craving for alcohol? His treatment of alcoholism is the least satisfactory part of the book. It is highly disappointing when such a writer forsakes the social point of view to defend those who would place satisfaction of appetite above the social good.

However in spite of disagreement on a few points, most of them of a minor importance, the reviewer wishes to repeat that Professor Dexter has succeeded admirably in the task he undertook in writing his book. It would be hard for one who wishes to get a brief survey of the problems confronting society to do better than to turn to it. If he does not wish to read it all he will find an excellent table of contents that will direct him to those subjects in which he is interested.

University of South Dakota. CHARLES C. JOSEY.

TRAINING THE TODDLER. By Elizabeth Cleveland. Philadelphia: J. B. Lippincott, 1925. Pp. x+172.

THE ADOLESCENT GIRL. By Winifred Richmond. New York: Macmillan, 1926. Pp. xiv+212.

Among the many books published in the last few years on the subject of Child Study, Training the Toddler and The Adolescent Girl stand out because of their practicability as handbooks for the host of people who must concern themselves with the up-bringing of children regardless of technical background or appropriate training. Both books are pleasant reading. They are sound of substance and written in a clear concise style. More important, together they cover the two phases of child life most talked of at the present time, namely, the pre-school period and adolescence.

Training the Toddler deals with the child who has passed out of babyhood but has not yet reached school-age—the child from two to five. "It aims especially to state the fundamental principles underlying the training of children in a definite form suitable for use in the home, in short courses for parent-teacher associations or kindergartens, other adult groups, or as a text-book for high school classes of girls in home economics, embodying in a central core the theory to be supplemented by actual practice in child care."

The principles set forth are illustrated from the procedures developed by the Merrill Palmer School of Detroit, an institution modeled on the lines of the nursery schools in England under the Fischer Act and "endowed under the will of the late Mrs. Lizzie Merrill Palmer of Detroit for the training of girls for motherhood. The girls in training are students in various colleges and universities. Their work deals with child health and nutrition, child psychology and child management, and educational method. To provide them with practice an experimental nursery school is maintained."

The book is a polemic for the need of special training for parenthood and the value of the nursery school as a demonstration center and as a laboratory. The equipment of the school is outlined and the daily program for the children given in detail. Arrivals are managed on the "stagger plan" in order to accommodate parents and incure an individual welcome. There follows inspection by the nurse, the morning play, dinner and so on, all charmingly described by Mrs. Cleveland with intent to lure the reader on to more substantial matter.

After insisting on the need of a truly scientific attitude and after "banishing the bogey of inheritance", Miss Cleveland describes under the heads of standards of physical, mental, emotional, and social development, "some of the ways of setting the stage—of making environment serve the healthful development of personality".

The tenets of the chapter on physical development need no further substantiation than that afforded by the results obtained. The children of the Merrill Palmer School have grown at fifty per cent more than the expected rate. They have been cured of minor chronic difficulties such as slight anemia or constipation. These improvements were brought about chiefly through "unrelenting regularity" which "in the face of all difficulties must somehow be secured". Various techniques are cited for cultivating a taste for wholesome food and for overcoming distaste without insistence. The "inviolate nap" and the importance of a happy mental attitude in the maintenance of physical wellbeing are other factors which enter into the building of a healthful body.

The nursery school can also give worthwhile assistance to the home by furnishing definite standards of ability. Perceptual development, the acquiring of a vocabulary, the part stories play in the child's mental and aesthetic development, the need of outlets for the creative instincts, the growth of concentration through interest are topics carefully handled under the heading of mental development.

In discussing the emotional life of the pre-school child, Miss Cleveland succeeds in emphasizing the importance of suitable emotional control in the modification of undesirable behavior. In spite of the fact that standards are less fixed in this aspect of child-training than are the standards for physical development, the book removes uncertainty and confusion by establishing definite trends for the wise direction of anger, the treatment of tantrums, the avoidance of fear and the dangers of excessive affection. Suitable technique is in every instance illustrated by reference to procedure in actual cases.

Similarly, the cases cited in the chapter on standards of social development serve to demonstrate the efficacy of the nursery school environment in bringing about the many social adjustments which every personality must make if it is to be included within the range called normal. The successful handling of cases of lying and stealing will probably allay many parental anxieties. Shyness and other undesirable tendencies also yield to the skilled guidance of the school leaders. It is further evident that the community itself, consisting as it does of comparatively uninhibited souls, acts as a repressive influence in the case of over-dominance, putting on airs, contrariness and the like.

Considering the vigor and progressiveness of kindergartens in this country, Miss Cleveland's last chapter, Graduating to Kindergarten, might well have been omitted. One suspects that it has been a cause for "the wise direction of anger" in certain educational quarters. Nevertheless Training the Toddler is pleasantly written and is sound in principle,—a combination which should increase its helpfulness and put it in line for that immortality now accorded Millicent Shinn's "Biography of a Baby".

Because it is more technical, The Adolescent Girl, by Winifred Richmond, needs to be read with considerable discrimination by the layman if its contents are not to prove indigestible. The book is written for the intelligent parent who desires a knowledge of the physical and psychical factors of maidenhood. It aims to substitute experimentally tested fact and well-founded scientific theory for the superstitious practices that continue to be handed down from mother to daughter in spite of our so-called modern enlightment.

Toward the successful accomplishment of this purpose, the structure of the book plays an important part. Like theorems in a geometry book, each chapter is an inescapably necessary basis for the one succeeding; only, in this case, instead of working towards "the square of the hypotenuse" as a final climax, Dr. Richmond is intent on creating in the reader's mind a fundamental understanding of the adolescent girl. She first outlines the tribal beliefs and sacred rites which, since the beginning of time, have been associated with the advent of puberty. These are in marked contrast to the common-sense stability of the chapter on physical basis and hygiene of puberty which follows. With this basis carefully laid, the author proceeds to a discussion of the abnormal girl and the delinquent girl. She then describes the normal girl in concepts and terms that closely follow Jung, devoting a final chapter to the subject of education and training.

It can readily be seen that to present even the simple fundamentals of this subject to readers who lack technical training and even elementary knowledge of the customarily accepted psychiatric concepts, necessitates many a categorical statement, and many a simplification of text which, to a more sophisticated audience, sometimes verges upon the inaccurate. This occurs even though the author frequently points out that the last word has not yet been said and warns against the formulation of too fixed a point of view.

A case in point occurs in the chapter on puberty. Dr. Richmond very rightly handles the whole chapter as if the reader were a patient before her for treatment. She creates confidence in the idea that the normal woman by suitable hygienic precautions can carry-on, during the menstrual period, without serious inconvenience, either mental, emotional, or physical. There are few people to-day who would quarrel with this intent to rid women of the false emotional attitude which surrounds this function. On the other hand, it would be impossible for anyone who has been following the psychophysiological literature, or conducting experimentation on blood pressure during menstruation to agree with such a statement as "It has only recently been disputed that temperature, pulse rate, and blood pressure were affected during menstruation; the most carefully controlled studies have failed to show this to be a fact. Neither is there any loss of mental or motor efficiency in normal women nor any regularly recurring periods of maximum efficiency within each month." The more recent indications are that this is a statement contrary to fact. Nevertheless, teachers of adolescent girls will give thanks for a straightforward discussion of the hygiene of menstruation. It ought to help disconcert the "mother knows" attitude. There is also in this chapter a refreshing emphasis on the need for getting away from the family.

The chapter on the abnormal girl represents a courageous piece of pioneering. It gives a mother sufficient knowledge of feebleminded characteristics and psychopathic tendencies to arouse her to immediate action if any of these tendencies appear within the family group. There is also a stand in favor of retaining the high-grade defective within the social group in so far as individual dispositions, emotional qualities, and temperament permit social adaption. This chapter would of itself justify the book by giving the mother and teacher a fundamental idea of the many psychoneuroses that so frequently occur in adolescent girls.

The delinquencies of the adolescent girl are explained as an expression of conflict between the instinctive forces of her nature and the restraints society would impose upon them. The answer to the question why girls go wrong is to be found in a study of the particular girl and the particular environment in which she lives. Of the common forms of delinquency mentioned, the most revealing to parents and teachers is the existence of secret organizations among adolescents for the indulgence of sex experimentation. These are strongly reminiscent of more primitive tribal practices. Dr. Richmond's explanation of the "crush" and stealing as a

substitute sex activity should be helpful to the mothers who must guide an adolescent girl through these unacceptable phases.

There are three noteworthy points in the final discussion of the normal girl. These are the importance of childhood experiences in moulding the adolescent personality; the variations in personal diet and scope of activity for the two major physical types, the long-legged, thin-chested, short-bodied girl and her opposite, the girl of stocky build; and the distinction between extroverted and introverted types of personality.

Probably, the most important single contribution of the book comes from a frequently reiterated and constantly sustained point of view expressed in the chapter on training and education: "As parents and teachers, we are prone to look forward to the woman of the future, to measure the girl by what we wish her to become instead of discovering what she is at present and accepting that as our guide in further efforts on her behalf."

Certainly, this statement contains the gist of Doctor Richmond's message and will serve to illustrate the kindly insight she has brought to bear in her suggestions for guiding the adolescent girl.

Doctor Richmond has made a sound practical book which should be in every mother's library. As a handbook for mothers the book is unique, for, although there are many books on adolescence, there are very few dealing only with the adolescent girl, and none that handle the subject so thoroughly.

ELIZABETH H. MARSTON.

Metropolitan Life Insurance Company.

A TEXT-BOOK OF PSYCHOLOGY FOR NURSES. By Maude B. Muse. Philadelphia: W. B. Saunders Co., 1925. Pp. 205.

To condense into three hundred and fifty printed pages the content of the present day beginner's course in psychology including as it does a quick glance at biology, psychiatry, heredity, and endocrinology, is in itself no small feat. Yet Miss Muse has not only covered the ground both as prescribed by current collegiate practice and as outlined in the standard curriculum for schools of nursing, but has also sustained the nurse's point of view with a consistency only possible to one of her particular training and background. For illustrative material she draws heavily upon her hospital and bedside experience as a nurse. As an instructor in a normal school for nurses, she has learned the needs of both curriculum and student. As a successful teacher of psychology to nurses at Teachers College, she makes her selection of material with assurance and presents it in simple language with finished technique.

"This book is an attempt to present in as simple a way as possible such phases of modern reaction psychology as should prove useful to the nurse and to show the nurse how the laws and principles of psychology may be applied to nursing problems." There are fourteen chapters. After the to-be-expected "Why do nurses need psychology?" and a chapter on "nature and scope", Miss Muse gets down to business with four chapters on the behavior mechanisms sub-divided as follows: the receiving

mechanisms; the connecting mechanisms; the reacting mechanisms; muscles and glands; the reacting mechanisms, cortical.

The discussion of behavior mechanisms is followed by chapters on "native traits and tendencies", "thwarted tendencies and mental conflicts", "individual differences", "tests and measurements". The latter is another impressively condensed chapter,—an excellent substitute for "tutoring at the widow's" to the student cramming for a final.

The last four chapters deal with the "psychology of learning", "economical learning" in two chapters, and "learned mental disorders". As the headings cited indicate, the author throughout the book sticks closely to the terminology and attitudes of "reaction psychology".

A word at this point about the "applications to nursing problems". They reveal a professional enthusiast and an earnest teacher concentrating to build in the minds of her pupils an ideal of " the perfect, gentle" nurse. If the nurse has lost her rubber heels, she will not tap round on tip-toe, but will walk with a firm light tread. Darkness suggests severe illness, so she will shade the patient's eyes instead of excluding light from the room. "Her capable fingers seek and find the pulse as if indeed they had 'eyes'." She knows the torture of "crumbs in the bed or wrinkles in the bottom sheet". She never "rubs the backs of her patients with cold clammy hands or unwarmed alcohol". We certainly like this nurse.

But to get back to behavior mechanisms and psychology. Certainly there is in this book no sign of revolt, no breaking up of old tradition to make room for a newer tempo. On the contrary, like Rip Van Winkle rousing from his twenty year sleep, the Wundtian concept of apperception and ameboid theory of synapse raise their heads once more. Gregariousness, collecting and hoarding not to mention the "maternal instinct" are still with us. In spite of the statement that the science of psychology has few laws, a longer list is cited than any other we have ever seen. For instance,—the law of advantage, analogy, association, associative shifting, combination, diminishing returns, effect, exercise, filial regression, learning, multiple response, parsimony, piecemeal activity, psychology, readiness, response by analogy, selection, shifting, simultaneous exercise, and universality. These are stated categorically of necessity and there is little suggestion that many are already being questioned or that most of them will be. The Psychology for Nurses is then the work of a teacher intent on passing on the mores as she herself has found them to the group coming up before her for instruction.

Psychology for Nurses is planned for the schoolroom and should receive an immediate welcome there. In addition to compactness of organization, simplicity of style and efficient condensation, there is an abundance of practice material in the form of exercises, experiments and review questions included at the end of each chapter. In fact, it would seem that such a consistently careful job should already be well on its way toward proving itself indispensable as a textbook in those schools for which it was written.

Metropolitan Life Insurance Co. E. H. Marston.

NEW BOOKS RECEIVED

(This notice does not preclude the book from further notice or review.)

Probation and Delinquency. By Edwin J. Cooley. Catholic Charities of the Archdiocese of New York, New York, 1927. Pp. vii+544. Price $3.00.

Individual Differences in the Intelligence of School Children. By Mary M. Wentworth. Harvard University Press, Cambridge, 1926. Pp. 3+162. Price $2.00.

Pupil Adjustment. By William Claude Reavis. D. C. Heath and Co., New York, 1926. Pp. ix+348.

Genius. By Arthur C. Jacobson. Greenberg, New York, 1926. Pp. 1+160. Price $2.50.

Introduction to Social Statistics. By Clarence G. Dittmer. A. W. Shaw Co., Chicago, and New York, 1926. Pp. 3+167. Price $2.50.

A Short Outline of Comparative Psychology. By C. J. Warden. W. W. Norton & Co., Inc., New York, 1927. Pp. 11+96.

The Mind and Its Mechanism. By Paul Bousfield and W. R. Bousfield. E. P. Dutton & Co., New York, 1927. Pp. 1+224. Price $4.00.

Pleasure and Pain. By Paul Bousfield. E. P. Dutton & Co., New York, 1926. Pp. 1+114. Price $2.00.

An Introduction to Sociology. By Wilson D. Wallis. Alfred A. Knopf, New York. Pp. 6+433.

Purposive Evolution. By Edmund Noble. Henry Holt & Co., New York, 1926. Pp. 3+578. Price $5.00.

Mental Tests in Clinical Practice. By F. L. Wells. World Book Co., Yonkers-on-Hudson, N. Y. Pp. 1+315.

Readings in Urban Sociology. By Scott E. W. Bedford. D. Appleton & Co., New York, 1927. Pp. 1+903. Price $5.00.

The Springs of Human Action. By Mehran K. Thomson. D. Appleton & Co., New York, 1927. Pp. xi+501. Price $3.00.

L'Activité Psychique. By Edme Tassy. Librairie Félix Alcan, Paris, 1925. Pp. vii+123.

Manual of Psychiatry. By Aaron J. Rosanoff. John Wiley & Sons, Inc., New York, 1927. Pp. xii+697.

A Manual of Individual Mental Tests and Testing. By Augusta F. Bronner, William Healy, Gladys M. Lowe, Myra E. Shimberg. Little, Brown, and Company, Boston, 1927. Pp. 3+287. Price $3.50.

The Religion Called Behaviorism. By Dr. Louis Berman. Boni & Liveright, New York, 1927. Pp. viii+153. Price $1.75.

The Psychology of Mental Disorders. By Abraham Myerson. The Macmillan Co., New York, 1927. Pp. vii+135. Price $1.40.

Applied Psychology. By A. T. Poffenberger. D. Appleton & Co., New York, 1927. Pp. xx+586. Price $4.00.

The War on Modern Science. By Maynard Shipley. Alfred A. Knopf, New York, 1927. Pp. xiv+415.

The Psychology of Religion. By Charles Conant Josey. The Macmillan Co., New York, 1927. Pp. xi+362. Price $2.50.

Two Souls in One Body? By Henry Herbert Goddard. Dodd, Mead & Co., Inc., New York, 1927. Pp. xiii+242. Price $2.50.

The Cause and Cure of Speech Disorders. By James Sonnett Greene and Emilie J. Wells. The Macmillan Co., New York, 1927. Pp. xvi+458. Price $4.50.

Speech, Its Function and Development. By Grace Andrus de Laguna. Yale University Press, New Haven, 1927. Pp. xii+363. Price $5.00.

Thought and the Brain. By Henri Piéron. Harcourt, Brace & Company, Inc., New York, 1927. Pp. xvi+262.

The Case for and Against Psychical Belief. Edited by Carl Murchison. Clark University, Worcester, Massachusetts, 1927. Pp. 3+365.

The Psychology of Thought. By H. L. Hollingworth. D. Appleton & Co., New York, 1926. Pp. xiii+329. Price $3.00.

Directory of American Psychological Periodical

American Journal of Psychology — Ithaca, N. Y.: Morrill Hall. Subscription $6.50. 600 pages annually. Edited by E. B. Titchener. Quarterly. General and experimental psychology. Founded 1887.

The Pedagogical Seminary and Journal of Genetic Psychology — Worcester, Mass.: Clark University. Subscription $7. 700 pages annually. Edited by Carl Murchison and an international coöperating board. Quarterly. Child behavior, differential and genetic psychology. Founded 1891.

Psychological Review — Princeton, N. J.: Psychological Review Company. Subscription $4.25. 480 pages annually. Bi-monthly. General. Founded 1894. Edited by Howard C. Warren and John B. Watson.

Psychological Bulletin — Princeton, N. J.: Psychological Review Company. Subscription $5. 720 pages annually. Psychological literature. Monthly. Founded 1904. Edited by Samuel W. Fernberger.

Psychological Monographs — Princeton, N. J.: Psychological Review Company. Subscription $5.50 per vol. 500 pp. Founded 1895. Ed. by Shepherd I. Franz. Published without fixed dates, each issue one or more researches.

Psychological Index — Princeton, N. J.: Psychological Review Company. Subscription $1.50. 200 pp. Founded 1895. Edited by W. S. Hunter. An annual bibliography of psychological literature.

Journal of Philosophy — New York; Sub-Station 84. Subscription $4. 728 pages per volume. Founded 1904. Bi-weekly. Edited by F. J. E. Woodbridge and Wendell T. Bush.

Archives of Psychology — Sub-Station 84, N. Y.: Archives of Psychology. Subscription $5. 500 pp. ann. Founded 1906. Ed. by R. S. Woodworth. Published without fixed dates, each number a single experimental study.

Journal of Abnormal and Social Psychology— Boyd Printing Co., Inc., Albany, N. Y. Subscription $3. Edited by Morton Prince and Henry T. Moore. Quarterly. 432 pag annually. Founded 1906. Abnormal a social.

Psychological Clinic — Philadelphia: Ps chological Clinic Press. Subscription $2. 288 pages. Ed. by Lightner Witmer. Found 1907. Without fixed dates (9 number Orthogenics, psychology, hygiene.

Training School Bulletin — Vineland, N. J The Training School. Subscription $1. 1 pp. ann. Ed. by E. R. Johnstone. Founde 1904. Monthly (10 numbers). Psycholog and training of defectives.

Comparative Psychology Monographs — Baltimore: Williams & Wilkins Co. Sub scription $5. 500 pages per volume. Edite by W. S. Hunter. Published without fix dates, each number a single research.

Psychoanalytic Review — Washington, D. C 3617 10th St., N. W. Subscription $6. 5 pages annually. Psychoanalysis. Quarterl Founded 1913. Ed. by W. A. White a S. E. Jelliffe.

Journal of Experimental Psychology — Princeton, N. J.: Psychological Review Com pany. 480 pages annually. Experimenta Subscription $4.25. Founded 1916. B monthly. Edited by Madison Bentley.

Journal of Applied Psychology — Worceste Mass. Florence Chandler. Subscription $ 400 pages annually. Founded 1917. Qua terly. Edited by James P. Porter a William F. Book.

Journal of Comparative Psychology — Balt more: Williams & Wilkins Co. Subscripti $5. 500 pages annually. Founded 191 Bi-monthly. Edited by Knight Dunlap a Robert M. Yerkes. (P. A.)

Genetic Psychology Monographs — Worceste Mass.: Clark University. Bi-monthl Founded 1925. Subscription $7.00. 50 pages annually. Edited by Carl Murchiso and an international coöperating board.